Gleanings in Bee Culture

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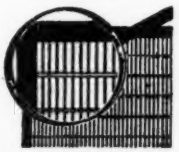

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Monthly HONEY Report

WALTER BARTH, Associate Editor

WHILE THE prolonged hot spell in July did a lot of damage to honey plants in New England, many areas of the region were able to harvest a nice crop in the comparatively cool June. Rhode Island, Connecticut and New Hampshire report satisfactory honey crops while Vermont only expects half of a normal crop.

The goldenrod looks good in Maine but as in the other New England states much rain is needed if a good fall flow is to be expected. The bees are ready for the fall flow, but unfortunately, in many areas the colonies built up on the honey flow for they came through the winter very poorly. Such was the case in New Hampshire and Rhode Island.

Honey is selling very well in New England with wholesale lots of white honey bringing as high as 18 cents. Five pound retail jars are bringing from $1.10 tto $1.75.

In New York State the market is in a state of flux and so not much price information is available. There are a few wholesale reports of 12 to 15 cents for white honey and 11 to 13 cents for amber. The north central portion of the state had a good flow with reports of 80 pound averages. Northern New York is spotty and probably lost a bumper crop due to the drought. The crop in the western counties was a failure because of dry weather. The same holds true for southern tier counties.

The honey plant outlook in the Empire state is also poor. Not much hope given for buckwheat this year, and in some places goldenrod is blasting and drying up. It is hoped that recent rains will improve chances for a fall flow.

In spite of the excessively hot weather in the East, New Jersey came up with a larger honey crop than in 1954. Some producers report 100 pound averages from sumac, blackberries, and bergamont. Purple loosestrife is in full bloom along the creeks and the Delaware river. Goldenrod and aster plants look good in spite of the dryness. No definite market has developed here as yet.

Walter Barth

A good crop of lima bean honey is expected in Delaware while the situation is very spotty in Pennsylvania. Some areas report a better than average crop in the Quaker state while other sections report a failure. The recent rains have helped the fall honey plants but much more is needed.

Bees are gathering some cotton honey in South Carolina. Sourwood is about over in that state. Honey sales are brisk and prices are holding firm. Florida reports retail sales of five-pound jars of orange honey at $1.25 and light amber in the same weight at $1.00. Wholesale prices in 60's (F.O.B. packing plant) are as high as 19 cents per pound for white honey and 17¼ per pound for amber honey. In view of these prices it is a surprise to see comb honey quotations as low as $7.00.

Louisiana beekeepers report that

(Continued on page 549)

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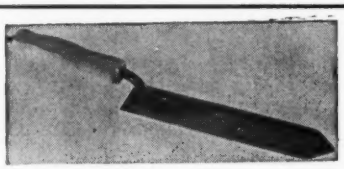

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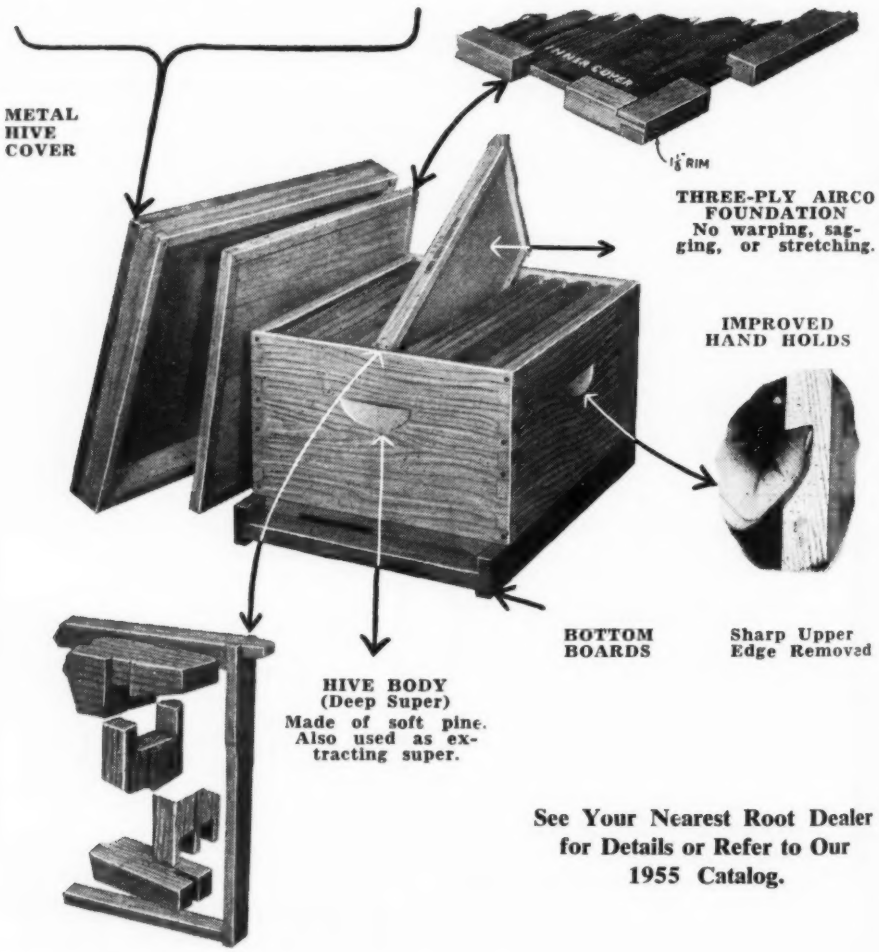
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Plastic cell cups for queen rearing and production of royal jelly

J. F. MARTINEZ LOPEZ, Merida, Mexico

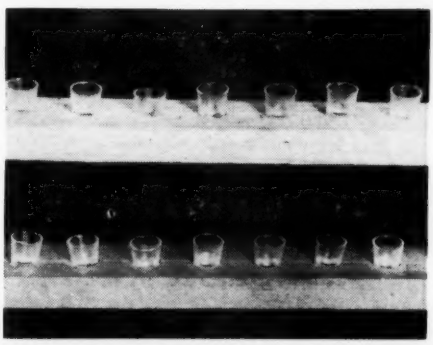
THE QUEEN breeders, and now the royal jelly producers, have used, traditionally, cell cups made of pure beeswax. The elaboration of these hand-made cell cups is a laborious task. This work requires patience, special skill, and takes time when made personally, or represents a permanent expenditure buying them from the manufacturers.

In the manipulation of royal cells constructed by bees in wax cell cups, it is necessary to use special care in order not to damage them, because carelessness could deform them due to the pressure of the fingers. To prevent this, there should be used in addition

The author exhibits a wooden strip with constructed royal cells by bees on transparent plastic cell cups.

to wax cell cups, other ones made of wood that serve as a base which means more expense and complicating work.

These inconveniences have been definitely and totally eliminated by substituting the wax cell cups for those of plastic material. We have ordered the construction of a steel mould to manufacture cell cups in plastic material, respecting the interior sizes of the royal cell bases, and externally we have

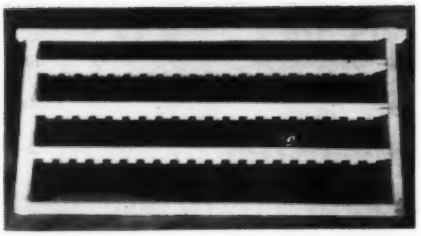


Transparent plastic cell cups in wooden strips.

made them in the shape of a truncated cone so as to adjust them, by introducing them more or less, in proper drill holes made in wooden strips that are placed in frames. Each wooden strip holds 20 cell cups and each frame three of these strips.

The procedure to utilize them is the

Transparent plastic cell cups in different positions.



A frame with three wooden strips holding transparent plastic cell cups.

same as the one used in those of wax. The larva not more than 36 hours old is transferred from a natural cell to the plastic cell cup. When all the cell cups have received their corresponding larva, the frame is given to the bees that will begin the queen rearing and the process is continued as usual.

Bees accept the plastic cell cups as well as those of wax, whatever their color and they do not need to be covered with wax or provided with royal jelly. For a long time we have been using them in that way, and with much success in our queen rearing yard "Apilandia", located near Merida city in Yucatan, Mexico.

We have already determined the advantages of plastic cell cups for queen rearing—in the production of royal jelly. Besides the before mentioned advantages, they permit us to extract it totally and without the risk that scrapings on the bottom of the wax cells get mixed with the jelly, adulterating the product.

Bee Lore

Illustrated by V. R. Stephen

NEW USE FOR HONEY: Bernard Gill of England reports (in the British Bee Journal) that it has always been customary to add a little honey to the water color pigments when the colors are being ground. This practice dates back to the old masters who also used green acacia as a medium following a 500-year-old Egyptian tradition. The levulose in the honey gives the necessary flexibility to the paint since it is non-crystalline. Now that water colors are sold as a paste in tubes it is more important than ever to use a hygroscopic substance as an ingredient. The author points out that glycerine has been tried for this purpose but it increases the risk of fading in the completed picture.

The preservation of honey by ultrasonics

Reported by ALFRED E. LEIGHTON, Riverdale, New York City, N. Y.
Consulting Candy Technologist & Food Chemist

WHAT MAY well prove to be "something new under the sun" is a method for the preservation of honey by ultrasonics. The method was reported in "Science" recently by Socrates A. Kaloyereas who is connected with the department of Agricultural Chemistry of Louisiana State University Agricultural Experiment Station. The findings resulted from some experimental work performed by the author (SAK).

Honey is a perishable product notwithstanding the common belief to the contrary. In an experiment extending over a two-year storage period, an average loss of 13 per cent occurred annually according to a report.

When honey deteriorates it crystallizes first, and this crystallization may be followed by fermentation. A consideration of the proximate composition of honey provides a clue to the mechanics of the spoilage when it occurs.

Sugars of various identities are of course the main constituents and are present approximately in the following amounts: Levulose (fructose), 40 per cent; dextrose, 34 per cent; and sucrose (same chemical identity as cane or beet sugar), two per cent. These sugars are in solution in water, which is present to the extent of about 18. per cent. Other substances are also present in small amounts. Among them group bodies such as dextrine, gums, organic acids, proteins, color bodies, aldehydes, esters, alcohols, some rare sugars, yeasts, enzymes, minerals, and vitamins.

When crystallization of honey occurs, the dextrose comes out of solution first. In the form which the crystals assume, they take up just about nine per cent of their weight as water. The remaining sugars are in a more dilute solution of water, relatively, than all the sugars of the uncrystallized honey had in the first place. Consequently, there is enough water present to support fermentation of the remaining levulose-sucrose solution, by the yeasts ever present.

So it is the crystallization of honey in the first place, which makes fermentation possible. If crystallization can be prevented, the honey will not ferment, so long as the original water content is not augmented in any extraneous fashion.

There are some types of honey that seldom if ever crystallize—tupelo, for instance. It is therefore interesting to inquire into the nature of the processes initiating crystallization. Such substances as dextrines and proteins present in honey, may play a part in forming nuclei (seed) which initiate crystallization. Even small dextrose crystals, beeswax particles, or air bubbles, entangled during centrifugation, may promote the process. The more completely free from such substances a honey may be, the smaller the tendency for the honey to crystallize.

THE PRACTICE of heating honey to inhibit crystallization destroys some of the seed factors, and hence the resulting material tends to remain liquid.

If it were not for certain disadvantages, the heating process might be as good as any. However, it takes an awful amount of care, and local overheating due to the material's high viscosity may occur. Discoloration caused by the interaction of the protein substances with the sugars present, is markedly accelerated. In addition flavor and aroma are marred, and large size crystals, which deleteriously affect flavor, sometimes occur after an interval of time.

Ultrasonic waves, as a technique in processing, have been used successfully for a variety of purposes, both experimentally and commercially. The degassing of liquids, the destruction of micro organisms, the extraction of flavoring matters from hops, and tentatively, the particle size reduction and flavor development of chocolate, may be mentioned as being among such applications.

It seemed logical therefore from the viewpoint of nuclei destruction, to try the effect of the waves on the retarda-

tion of crystallization of honey.

Preliminary experiments by the author (SAK) were unbelievably successful. The process consisted of using a magneto-striction oscillator, tuned to a frequency of nine kilocycles per second, applied for a period of 30 minutes, to the honey.

Immediately following the treatment check microscopic examinations were made, and also after storage periods of from one to four weeks, at temperatures varying from 102 degrees F. to minus 40 degrees F. None of the treated samples showed any evidence of crystallization, although the untreated control samples contained numbers of crystals of various sizes, which seemingly depended in extent, upon the temperatures under which the samples had been kept.

The indications are that the method represents an improved and practical technique for preventing spoilage in honey caused by crystallization and the fermentation which may be set up in the material as a consequence. Just the mere destruction of the seeding substances and conditions, by the ultrasonic waves, is responsible for the good effects. And in addition, most of the naturally occurring yeasts found in honey were destroyed by the ultrasonic waves.

The treated samples were limpid, slightly tart to a pleasing degree, and superior to the untreated controls. The latter were both opaque and less attractive.

Further studies to elicidate the process and learn exactly what takes place to cause the improvements noted, are being undertaken at the present time.

For those organizations desirous of undertaking experiments of their own in the application of ultra-sonics in the treatment of honey, it may be helpful to know that the Curtis Wright Corporation of Caldwell, New Jersey, Industrial & Scientific Products Division, make laboratory models of supersonic equipment and are willing to discuss potential use of ultrasonic energy with interested parties.

More about Comb Management

HUGH S. TIGNER, Plainville, N. Y.

I WAS interested by the article on "Comb Honey Management" (Robert E. Lyon) in the June 1955 number of this magazine and a bit surprised. Surprised, because I thought the method he described was **the** classic method of comb honey production. Anyhow, I have practiced the way he has sketched and can testify that it works.

Getting into comb honey production after running hives for extracted honey, I first tried the two-story (double-brood chamber) system. I got comb honey all right, but after trying the system Mr. Lyon described I got twice as much.

The key points of the system seem to be: (1) reducing the two-story colony to one at the right time—just as a main honey flow is setting in; (2) getting ten frames of brood into that bottom story. The first time I did this I worried a bit. Where was the queen going to lay? How would the bees react to this unnatural arrangement of the brood chamber? And wouldn't they promptly set about swarming? In fact, I was so worried that I didn't look into the brood chamber again to see what was happening. I pushed the chamber ahead about an inch, so as to give an opening for ventilation and flight from the rear, put on two comb-honey supers to take care of the crowd of bees, staggered these supers to give more ventilation, and put a half-inch block under the cover for some more ventilation.

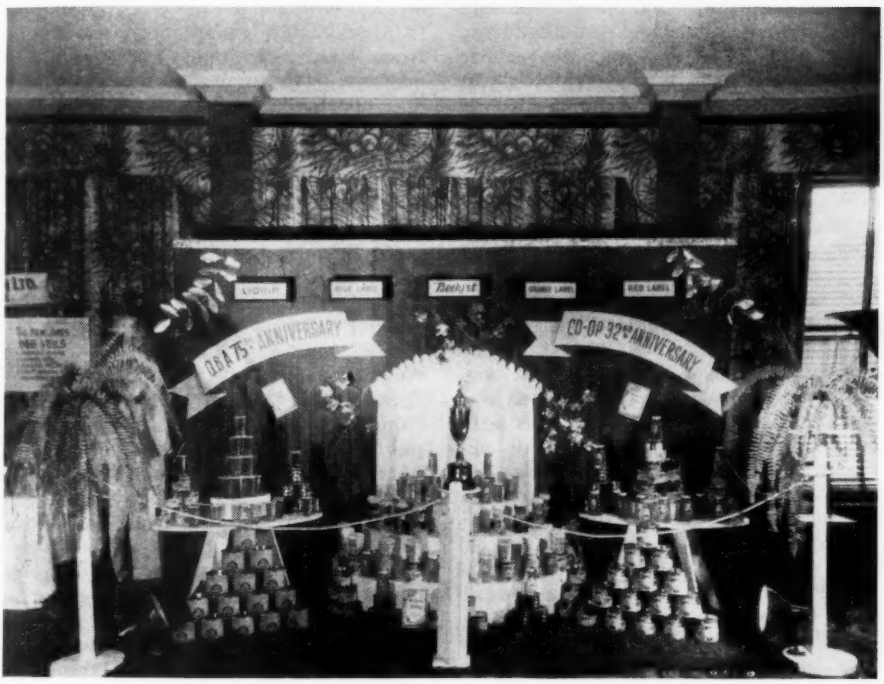
I am now applying this system for the fourth year, and in this location it has worked perfectly. I have never gotten a swarm from such a colony. And during the one poor year when nobody in this locality got a honey crop worth mentioning, I got about the same yield in comb honey as the extracted fellows got from their colonies.

Of course, there must be a honey flow. This year, from the way things have started out, I'm expecting a ripsnorter.

Honey publicity in Canada

TOM SHIELDS, Manager Ontario Honey Producers LTD., Toronto

Part I



The 75th anniversary honey exhibit of the Ontario Beekeepers' Association.

GOOD PUBLICITY of any food product combines all of the various methods and efforts, which are centered on advancing the sale of that product. Good publicity breaks down, in my opinion, to good advertising (both direct and indirect) and to good public relations.

To better understand this topic, let me briefly review the selling and consuming of honey in Canada. Selling honey in Canada is slightly different from selling honey in U. S. The main difference is, we sell 75 to 80 per cent of our honey in the granulated form. This is a very decided advantage from a packer's point of view.

Shortly after World War I, a trend developed toward the increased sale of liquid honey. This trend was probably offset by the appearance of the Dyce Process. The Dyce Process produces a smooth creamy granulation. It does away with the messiness, runniness, and drippiness of the liquid type. This is particularly true when the honey is used on toast, hot muffins, or hot tea biscuits.

During the past few years, we have noticed a reaction on the part of Mrs. Housewife to the purchasing of our super refined liquid pack. I believe that some consumers appreciate the beautiful lustre and clarity of liquid honey. Other consumers, and I think of these as the real honey users, have become suspicious and somewhat skeptical of our liquid pack being tampered with. Some consumers suggest we have lost the "old time honey flavor".

If these observations and criticisms are even only partially true, should we not become more cautious in our packing methods for liquid honey? I do not want to appear too pessimistic, I simply wish to be realistic in gauging the

thinking of the consumer. If we continue and still advance this super refining, we may find ourselves in trouble with the Pure Food and Health authorities.

Some morning, we may wake up with the Health Department saying "Sorry, boys, you are not now packing pure bee's honey. This product is just a sweet syrup somewhat resembling honey". We are therefore, in Canada, not making any great effort to increase the consumption of liquid honey.

We find it difficult in working out an accurate per capita consumption of honey. Consumption varies from year to year, and is affected by the production and sale of its chief competitors, jams, marmalades, and syrups. From the available statistics, we estimated during the 1930's, the per capita consumption of honey in Canada was one and one half pounds. During this period approximately 15 per cent of our yearly production was exported. Exports of honey ceased shortly after World War II began.

The demand for honey increased very materially during World War II and the per capita consumption increased to two and one-fourth pounds. Since World War II our exports have been very small and practically ceased during the past two or three years. With very few export sales, the only sensible objective was to expend every effort toward the sale of our entire production on our own market.

PRODUCTION of honey also expanded during the World War II period. This expansion remained constant until our huge production year of 1947-48. Selling of this large crop caused some difficulty, in fact we had a substantial carry-over. The result was a softening in prices, and then production declined slightly. This large crop increased the incentive of selling and demanded more publicity. The next five-year period produced good results from our publicity efforts. We were able to sell our entire production on our domestic market. Prices were fair to good (15 cents per pound bulk honey).

The stepped-up campaign was very successful in increasing the per capita consumption to approximately three pounds. We have therefore doubled our consumption of honey in Canada in the last 12 to 15 years.

What made this possible? Our consumption received a tremendous boost during World War II. Our population increased with many new Canadians from Western Europe. These new Canadians have increased the consumption, particularly for colored honeys. The balance of our increased consumption, I would say was due to good publicity.

Our Publicity Program operates at four distinct levels.

(1) The National or Federal level
(2) Provincial or State level
(3) Packer's level
(4) Producers or beekeeper's level

The Canadian Beekeepers' Council corresponds in many respects to your American Beekeeping Federation. This Council is largely responsible for most publicity of a National character. Most of the Council's advertising was of a direct nature. This publicity was originally begun on the trial and error basis.

Direct publicity or advertising is of course very expensive and great care and thought must be exercised in securing the most value from every dollar expended. In obtaining the most value from direct advertising it should be so placed that the reader has plenty of time to see and absorb the message. Much of the Council's early publicity was just so-so, in value.

AFTER TRYING several different types, I believe we agree the comic strip type obtained the best results. These comic strips were placed in the comic sections of the week end and Sunday Metropolitan papers. This type of publicity certainly alerted and held the attention of the younger generation. The underlying message about honey was also of interest to adults.

Our Council furthers its publicity program by assisting financially established promotional organizations, example, American Honey Institute and Sports College. The efforts of the American Honey Institute and Sports College are quite familiar. These have or will be discussed by others more familiar with their operations.

The Council further attempts to interest Federal Departments of Government who are interested in the preparation of Consumer Bulletins. It is the Council's duty to have honey and its uses appearing in these bulletins.

In the field of public relations, the Council also has an interest. It subsidizes the cost and distribution to various beekeepers' organizations and honey packers, such pamphlets as "The Story of Honey" and "Honey Sunday 'N' Monday 'N' all through the week".

You will no doubt be interested in knowing the amount spent by the Canadian Beekeepers' Council on publicity. During the past four years, the Council collected approximately $115,000.00. The Council spent $88,000.00 or roughly 77 per cent on publicity, mostly of a National scope.

Many of our Provincial Beekeepers' Associations spend worthwhile amounts of money on honey publicity. Direct advertising is used through newspaper, radio and to a limited extent television. Some of their publicity, appearing in newspapers, centers around national sporting events. This publicity appears only at certain periods in the year, and particularly after the winning of some important sporting event.

The publicity centers around the fact that the team or individuals as the case may be, used honey extensively in their training diet. Publicity of this type may be somewhat sensational. It may provide a shot in the arm to the immediate sales of honey. However, where used by athletes in national or world-wide competition, this publicity becomes of great importance.

(to be concluded)

Marketing the Honey Crop

DR. LEONARD HASEMAN, University of Missouri

THE SMALL PRODUCER will market his crop mostly in his own neighborhood, or in nearby towns and cities. If he produces and puts up a neat and attractive package, and works for repeat orders, he can usually sell his entire crop locally and at a profitable price.

Make it a practice never to sell honey that is off in flavor or in color. Use it at home in cooking or feed it back to the bees for brood rearing before the spring nectar flow opens. Remember that honey is a food and is to be eaten, so it must be put up clean and in a neat, attractive package.

Glass fruit jars make an attractive package for small orders, and five and ten-pound pails are very satisfactory as larger packages for extracted honey. Always try to keep a supply on hand for later or repeat orders and the honey consumers in the community will depend on you for honey every year.

Roadside marketing for honey is becoming a very attractive method of selling honey. In this case, the quality of honey and attractiveness of package are particularly essential. Either a small crop, or the crop from a large commercial apiary, may be sold and at a good price in roadside marketing. Remember that both extracted and comb honey will keep for several weeks, so that the entire crop need not be dumped upon the market.

Beekeeping is a more or less hazardous occupation and the beekeeper is entitled to a reasonable return for his crop, and if he is thoughtful in his marketing he can help maintain a satisfactory price so as to receive a reasonable return for his labor. Beekeepers should read the monthly honey report as it appears in Gleanings in order to get a better idea what crop conditions and honey prices actually are on the national market. Following this column regularly will help the beekeeper to develop a fair price for his local market.

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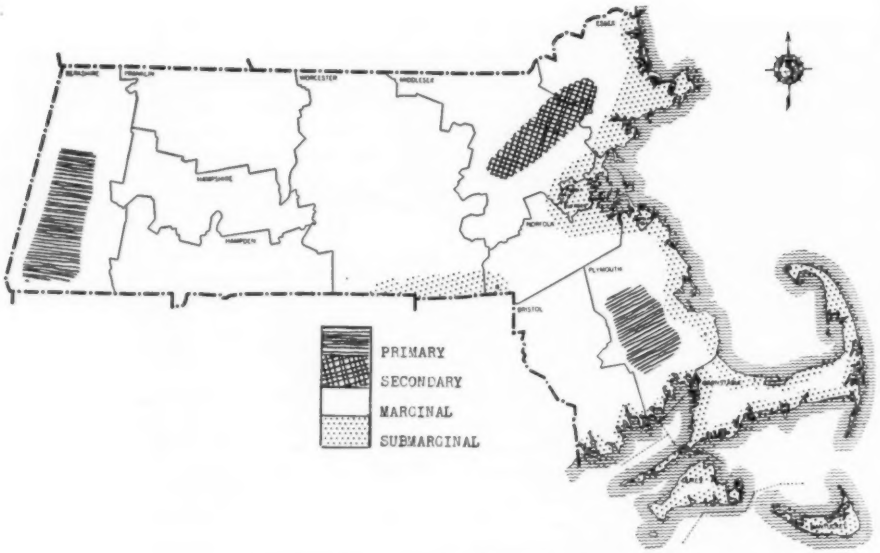


Beekeeping areas in Massachusetts.

Beekeeping in Massachusetts

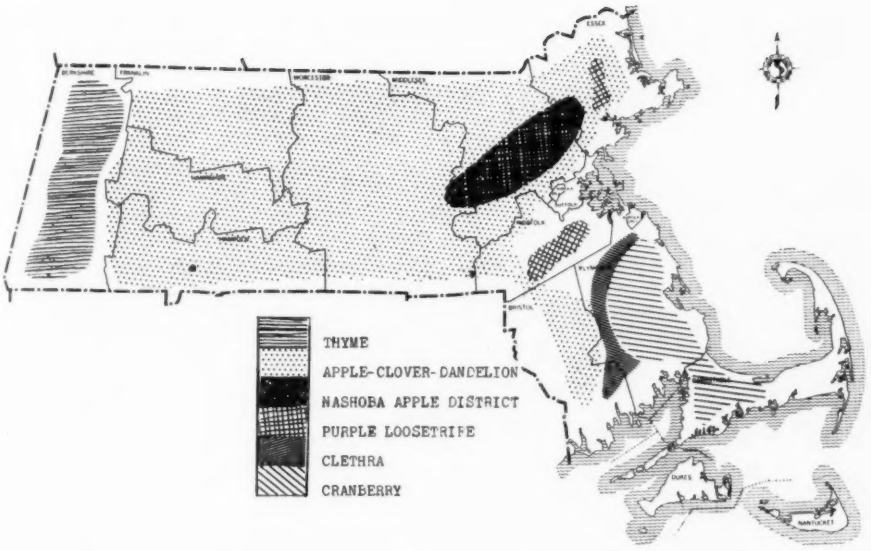
MILO R. BACON, Chief Apiary Inspector of Massachusetts

MASSACHUSETTS BAY COLONY started its agricultural program almost as soon as the leaders Bradford, Carver, and Brewster landed their little party from the Mayflower. When the Fortune brought more Pilgrims, crops were grown and shared on a community basis for the first year, but soon changed to independent plot assignments. The incentive to work and profit thereby proved fundamental as always. Other settler groups located in what is now Watertown, Massachusetts, and dissenting splinter groups went by boat to Dedham and Sudbury on the Charles River.

One of the earliest successful beekeepers was "grandpa" George Phillips of Dedham. For many years he was known far and wide in New England and New York State as "the Bee King". Charles Ellis of Westwood, Burton N. Gates of Worcester, Ivan Rawson of Pittsfield, each made big impacts on the beekeeping industry during the last of the 1800's and early 1900-1920 period. Their own apiaries proved their ability and keen insight concerning the nature of the honeybee and an undying devotion to making it safe and worthwhile for all to keep bees. American foulbrood was always a specter hovering over their yards and it was a case of "kill and burn" or be put out of business.

Many bitter feelings were engendered between neighboring beemen and many an exposed hive was "planted" to cunningly infect another man's bees. Also, sulfur was burned mysteriously in hive entrances to reduce the competition for the nectar of the region. Not a very pretty commentary on the integrity of men who were handling the world's finest cooperating animal. But who can deny that a man's instinct to survive may lead him sometimes to base motives. Even the bees rob out a weak colony!

And how is it different in this last half of the 20th century for the beekeeper? Well, the picture is so complex that it would seem very bad, if you want to measure progress or success by quantities of honey or numbers of colonies per beekeeper. The war period made of Massachusetts a beehive of industrial building. Every city and many small towns had a housing problem and subsequent real estate develop-



Distribution of honey plants in Massachusetts.

ment that would make Grandpa Phillips rub his eyes in amazement should he come back and look around his home area and bee-pasturage spots. North Weymouth had 15 beekeepers in 1939, but not one in 1943 after Pearl Harbor, so quickly did the ship building program develop at Quincy and nearby Hingham.

BUT ASK the beekeeper who puts bees into our orchards and cranberry bogs to pollinate them so that Massachusetts can keep on saying "our apples are second to none in the world for flavor and color, and our cranberry crop is the largest in the world". These growers have really been sold on the need for the honeybee.

A price of $7.00 per colony is about the average received plus a good supply of light honey with exquisite taste. Many beekeepers make a bountiful harvest of dollars and honey by pollinating apples in the Nashoba Valley in the first part of May. More apples in southern New Hampshire a week or two later and then over the road a hundred miles or less and catch the later blooming cranberry blossoms. Three rentals from one hive in one season is the dream of many a beekeeper and the practical reality of quite a few.

I have not mentioned the mixed flower region of Worcester County where about 8000 small hobbyist type beekeepers reside. Their average apiary numbers three hives and some will run to 15 or 20. But all of them are proud of their skill and ability to handle bees and get a winter's supply of the nectar of the Gods. It is not possible in this area for any beekeeper to work enough bees to be in the commercial class, but their county association meets every month and this past winter operated a school for beginners.

Massachusetts has six county associations and a State Federation. Monthly meetings are held and much useful information is passed along from member to member, and cooperative action is on a sound basis from the State Department of Agriculture down through the county officers. This keeps control legislation and promotional ideas for the industry on a realistic level.

In the cranberry-growing area which is centered in Plymouth County beekeeping is quite commercial compared to the rest of the State. Many men operate 200 or more colonies. The cranberry growers are organized and they thoroughly appreciate the need for bees. A bumblebee does a lot of pollinating, but it takes the busy little

(Continued on pabe 573)

Effects of Demeton (Systox) on honeybees foraging in treated alfalfa *

CARL JOHANSEN and JOHN QUIST †

Power equipment is of three types—high-pressure sprayers, low-pressure sprayers, mist blowers, dusters, and fog applicators. The power source is usually a gasoline engine, ranging from one horsepower in small machines to 75 horsepower or more in the larger machines. The above power sprayer has 12 stationary nozzles. USDA photo.

EXPERIMENTS were conducted in 1953 to find an insecticide which would control pea aphids in alfalfa without greatly decreasing pollination by bees. Demeton (**Systox**) was one of the most promising materials tested (Johansen, 1954). Further tests to determine the effects of this insecticide upon honeybees and the honey which they produced were initiated in 1954.

Four alfalfa plots, ranging from two to six acres in size and surrounded by wheat or other small grains, were selected in the Pullman area. Each of these plots was 4-14 miles from any of the others and several miles from any suitable honeybee forage crop, p. 532. Each of these plots, which were considered as replicates, was treated with one quart of 22 per cent demeton per five gallons per acre with a truck-mounted sprayer. Two other plots were selected as untreated checks. Three to 12 days before treatment, two hives of honeybees were placed in each plot. One strong hive and one weak hive was selected in each case, to insure greater uniformity. Immediately after the treatment application, two marked frames with drawn comb were placed in each hive. Small areas in front of the hives were cleared of alfalfa and covered with cheesecloth.

Observations of bee activity were made in each of the plots after treatment. The number of dead bees in front of the hives was counted. Mark-

* Grateful acknowledgement is due William Boyd, Carl King, Kenneth Brewer, and Henry Meiners for supplying alfalfa fields; Margaret M. Hard and Florence Harris, Home Economics Dept., State College of Washington, for conducting honey flavor evaluation tests; Kermit Groves and Katherine Day, Dept. of Agricultural Chemistry, State College of Washington, for analyzing honey samples for insecticidal residues; and Chemagro Corp., for supplying demeton for this test.

† Carl Johansen, Asst. Ent., State College of Wash., John Quist, Graduate Assistant, Dept. of Entomology. Scientific Paper No. 1390, Washington Agriculture Experiment Station, Pullman. Project No. 550.

Table 1. Effects of Demeton Treatments to Alfalfa on Honeybees and Pea Aphids

Treatment *	Time of application	Av. No. Dead Bees in front of hives 24 hr.	48 hr.	Av. No. Living Aphids per 25 sweeps pre-treatment	1 day	6 wks.	Av. No. frames honey produced per hive in 3 weeks
(1) demeton 1 qt. 22%/acre	6:30 a.m.	2	6	153	0	1	6.5
(2) demeton 1 qt. 22%/acre	2:45 p.m.	9	5	78	1	2	8
(3) check -----		1.5	4	124	108	85	7

* Data for each treatment represent averages for 2 treatment plots and 4 hives.

ed frames were removed from the hives one week and three weeks after the alfalfa was treated. The number of living aphids per 25 sweeps of a 15-inch sweeping net was taken at one-day, three week, and six-week intervals. The number of frames of honey produced during the three-week period following treatments was determined for each hive (Table 1).

Although Eckert and Tucker (1954) stated that demeton (and several other insecticides) constituted a danger to pollinating insects when applied to plants in bloom, their conclusions were mainly based on laboratory feeding tests. It seems quite probable that they are right when they suggest that the absorption of demeton by plants may lessen its hazard. It has been shown by several investigators that demeton is quite toxic to honeybees by direct application. However, no really adverse effects on the honeybees were observed in this experiment even when applications were made during the active foraging period (2:45 p.m.). Lieberman et al (1954) classified demeton spray at 6 oz. per acre applied before 7 a.m. as safe for honeybees. Atkins and Anderson (1954) found that demeton dust was relatively safe to honeybees in laboratory tests.

Honey samples taken from marked frames (removed one week and three weeks after treatment) were analyzed for demeton residues. A small side-arm suction flask which could be inserted into single honey cells was utilized in obtaining representative samples from each frame. The analyses were based on a cholinesterase inhibition method of Hensel et al. (1954). Results of these analyses are presented in Table 2.

OTHER honey samples were extracted from marked frames for flavor analysis. A triangular test was utilized employing a 15-member panel and judging each sample a total of 30 times. In this type of test, each treatment sample is compared with a check sample at every judgment. The honey samples were presented to the panel members on plastic discs. No off-flavors were detected in any of the samples from hives in the demeton-treated plots.

Observations of honeybee activity in the alfalfa plots 24 hours after demeton application, indicated that the bees were repelled by the treatment. They were "milling around" in an unusual manner and very few were foraging in the alfalfa blooms. A faint odor of demeton was detectable at this time. After 48 hours, the bees appeared to

Table 2. Demeton Residues in Honey Produced During One-week and Three-week Periods Following Application to Alfalfa

Treatment	Time of application	1 week	3 weeks
demeton 1 qt. 22%/acre	6:30 a.m.	0.14 + or — 0.02 ppm	0.12 ppm or less *
demeton 1 qt. 22%/acre	2:45 p.m.	0.12 ppm or less	0.16 + or — 0.02 ppm
demeton 1 qt. 22%/acre	6:30 p.m.	0.12 ppm or less	0.15 + or — 0.02 ppm
demeton 1 qt. 22%/acre	2:45 p.m.	0.16 + 0.02 ppm.	0.15 + 0.02 ppm

* The method of analysis employed would not detect amounts of demeton up to 0.12 ppm.

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be foraging normally and a demeton odor could hardly be detected, if at all. This activity pattern was consistently observed in all four treatment plots.

Conclusions:

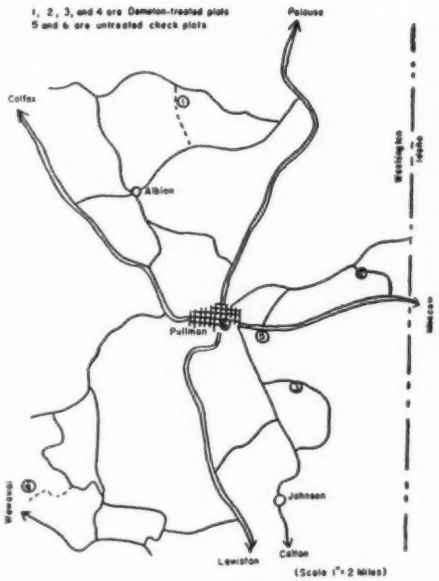
(1) No injurious effects to honeybees were detected after the application of one quart 22 percent demeton per acre (8 oz. actual) on alfalfa which they were forced to forage. Honey production and the number of dead bees in front of hives was approximately the same for bees in treatment and check plots.

(2) Honey stored during the first week and first three weeks following treatment was shown to contain 0.16 ppm demeton or less. This minute amount of insecticidal residue detected would seem quite safe under the circumstances, since honey would never be removed at similar intervals, nor would bees be forced to forage a particular field, under normal apicultural practices.

(3) It was consistently observed in all treated plots that honeybees were strongly repelled by demeton during the first 24 hours following application. After 48 hours, only normal foraging activity was observed.

(4) No off-flavors could be detected in honey produced during the three-week period following demeton application by honeybees foraging the treated plots.

(5) Pea aphids present in the plots were killed by the demeton treatment and kept at a low population level for six weeks.



Location of isolated alfalfa fields used in tests.

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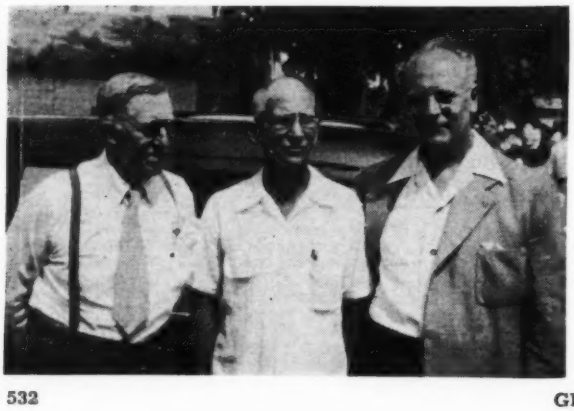

Three Ohio Presidents

Dr. E. E. King, president of Cuyahoga County Association; **Alvin Roser,** president of Lorain County Association; and **Frank Lomozik,** president of Medina County Assoc.

What will your label score?

CHARLES W. GOUGET, Glen Ellyn, Ill.

REGARDLESS of how superior a product may be it must be easy to recognize and identify if it is to obtain a wide and stable distribution. Like people, the product must have an individuality that may be readily recalled to the mind of the prospective buyer, and this personality is determined largely by the type of container used and its label. Again, as in the case of people, "personality" includes many factors that may be used as a kind of objective scorecard to judge the worth of an individual, or in this case a good or poor label.

What is a Good Label?

1. **Does your label identify your product?**

If your label is lost among similar jars and labels on a grocer's shelf; if your label cannot be seen from across the aisle in a self-service store; or if the customer must put on his glasses and grope around on the shelf to find your item because the print on the label is too small and the theme "Honey" too obscure, then you may need a new label. On the other hand, if you can boast of a 100 per cent identity job on your label the scorecard will allow you 25 points for this factor.

2. **Is your label artistic, attractive, and pleasing to the eye?**

To be artistic a label must conform to the general art of the container. It should not appear oversize for a small jar or undersize for a large jar, nor should a modernistic label be used on a jar that is out of date, or visa versa. Good art on a label will help to hold interest long enough to put over a selling idea.

Will your label command a second look like the beautiful woman who walks down the street, and will it hold that attention? If your label commands a second look it will make sales. Fifteen points are allowed for this factor on the scorecard.

3. **Is the general color of your label pleasing or irritating?**

Most people are sensitive to color. Proof of this fact can be seen in the wide variety of colors that are used on modern automobiles. Color is a part of the art on a label, and although the design may be good, the colors may be irritating and displeasing. The color red irritates a bull, a fact which holds equally as true for some people.

Are the colors on your label overdone, confusing, and irritating, or are they soothing and pleasing to look at? If the color of your label will command a pleasing second look it will be allowed five points for this trait on the scorecard.

There are many types of honey jars. Do you have the right honey label for yours?

4. **Does the design of your label build up prejudices?**

Poor design or over-ornamentation on a label may be as irritating and confusing as poor color. Too many figures may divide attention to the point where it will fail to get across the intended message, and a sale will be lost. Likewise, grotesque figures often calculated to put the buyer in a jovial mood may focus attention on the "funny" figure instead of on the theme "Honey", and a sale may be lost.

SOME "natural" figures are not without fault either. A natural picture of a bee on a label may be beautiful to most beekeepers, but it may suggest "creepy bugs" to people not familiar with bees. If the design of your label is simple, clear cut and pleasing it will be allowed five points on the scorecard.

5. **Does your label emphasize the theme "Honey"?**

Since we are trying to sell honey, the most prominent thing on the label should be the word "Honey". This word should stand out by contrast in color and design, and all other figures should be subordinate to it. The eye should not be allowed to wander for long to other figures on the label. If your label does a superb job in this respect the scorecard will allow 25 points for this very important item.

6. **Does the design of your label appeal to the senses of hunger and taste, and does it create a desire to use more honey?**

Modern bakeries elevate their window displays to approximately nose level with the hope that the prospective customer will "follow his nose", so to speak, into the bakery before he wakes up. A label that can cause the saliva and the gastric juices to flow will sell honey before the customer is aware of it. If your label really makes your mouth water it is wortth ten points on the scorecard.

7. **Does your label convey any information that may be of value to the customer?**

Information of this kind is found usually in fine print so that it will not take up too much space on the label. It might include a brief statement of honey as a health food or a popular recipe, but the label should never appear to be over-crowded. On this none-to-important item five points are allowed on the scorecard.

8. **Does your label fit the design of the container for which it is intended?**

This item is a must if the producer intends to put out a container with a "professional" look. Old style labels on modernistic jars or modernistic labels on old jars will not do. Such combinations should be avoided. If your label is in harmony with its container it will score ten points on the scorecard.

Now Try the Scorecard on Your Label

1. Does your label identify your product? .....25 points
2. Is your label artistic, attractive, and pleasing to the eye? ....15 points
3. Is the general color of your label pleasing or irritating? ... 5 points
4. Does the design of your label build up prejudices? ..... 5 points
5. Does your label emphasize the theme "Honey"? .....25 points
6. Does the design of your label appeal to the senses? .....10 points
7. Does your label convey information that may be of value to the customer? ..... 5 points
8. Does your label "fit" the container? .....10 points

Total points ....

Although the values allowed on the scorecard are arbitrary, and subject to change, a fair label would probably rate about 70 points; a good label about 75-80 points, and a superior label from 88-100 points. Can you give your label a good score?

Our Cover Picture

A COMB of white, glistening clover honey that has just been uncapped by a power machine and is ready to be put into a radial honey extractor. This is a far cry from methods employed half a century ago.

Factors affecting nectar secretion

MILTON G. SAVOS *, Oregon State College, Corvallis

Temperature:

BALDWIN (1921) noted that a higher temperature, or a longer period at a given temperature seems necessary to start nectar secretion on cloudy days than on sunny days.

Demuth (1923) stated that nectar secretion in the blossoms of basswood began about 64 degrees F.

Lovell (1924) reported that temperature exerts a greater influence on nectar secretion than does light, humidity, or rainfall since temperature renders the membrane of the nectary more permeable, increases the solvent power of water and accelerates the chemical reactions involved.

Barbier (1952) stated that the volume of nectar is determined by a complex of factors including the age of the flower, moisture content of the soil, and the microclimate; its sugar content is determined by the reserves of sugar in the plant and climatic conditions of which temperature is the most important single factor.

Merrill (1923) daily recorded the weight of five colonies of bees. All made substantial increases in weight when the daily range of temperature was large and with a maximum of 90 degrees F. or above.

Lovell (1924) stated that records of honey production for 29 years at Clarinda, Iowa, showed that the greatest yield from white clover was on days with a temperature from 80 to 90 degrees F., but that this depends on the optimum of the plant.

Mitchener (1927) reported a correlation between the pounds gained by colonies and temperature.

Temperature Range:

Kenoyer (1917) found that the optimum condition for nectar secretion was an alteration of low and high temperatures.

Hawkins (1919) reported that high night temperatures retarded the secretion of nectar by honey plants. He added that the high temperature effect in slowing down nectar secretion in white clover, raspberry, basswood, and sweet clover, in the order named, was noticeable.

Shuel (1952) studied the influence of night temperature on nectar secretion of red clover in a controlled experiment. He kept four groups of plants at night temperatures of 58, 60, 70, and 78 degrees F. Statistical analysis of the data obtained failed to show any significance in differences between mean nectar volume yields and mean nectar-sugar weights indicating that, if real differences did exist, they were too small to be detected with the technique and sample size (180) used.

Merrill (1923) reported that five scale colonies of bees all made substantial increases in weight when the daily range of temperature was large.

Hambleton (1925) found that diurnal temperature variations during the spring period had a higher coefficient of correlation than the fall period with respect to net gain in colony weight, but he adds that the lower fall value was probably due to brood production under adverse conditions; that is, the effort necessary to properly care for brood during the fall is proportionally greater than during the spring and thus the bees will leave the hive to collect pollen and nectar on days they normally would not go out during the spring or summer months.

Soil Temperature:

SHUEL and Shivas (1953) found that soil temperatures of 60 to 80 degrees F. seemed most favorable for nectar secretion.

Relative Humidity:

Kenoyer (1917) reported that buckwheat flowers kept humid under a bell jar secreted much more liquid than flowers exposed to rather dry greenhouse air and that the accumulation of sugar under low moisture conditions agrees with the observations of Lundegrath that increase in moisture favors the accumulations of starch, decrease in moisture its digestion.

Park (1929) reported that although an increase in nectar secretion is generally looked upon as favorable, it is not necessarily advantageous unless there is an increase in the amount of sugar

* This paper was completed while the author was a student at Mass. State Col.

Diagram of a basswood flower (Tilia) by John H. Lovell; 1, entire flower; 2, lengthwise section of ovary. The outer cycle of five small leaves is the calyx, each member is a sepal (s); the inner cycle of five larger leaves is the corolla, each member is a petal (p); the numerous pinlike organs forming the third cycle are the stamens (st); the little terminal knobs are the anthers and contain the pollen; the thread-like stems are the filaments; in the center of the flower is the pistil; the globular base is the ovary in which are formed the seeds; the stem above is the style bearing the stigma. The nectary (s) can be located at the base of the ovary or at the base of the petals, to name just a few possible locations. —(After Kerner)

made available to the bee.

Littlefield (1941) noted an inverse relationship between nectar flow and relative humidity and a direct relationship between nectar flow and temperature but that nectar flow decreased when the temperature went much above 90 degrees F.

According to Lovell (1924) nectaries secrete a larger quantity of water but while the amount of water passing through the nectary increases, the quantity of sugar secreted remains about the same.

Fog:

Lusher (1921) stated that fog is of utmost importance in providing moisture which increases surplus nectar from sage. According to Lovell (1924) moisture from fog is an important factor in the production of nectar in areas of California where the lima bean is a valuable honey crop.

Precipitation:

Vansell (1931) reported that rainfall has much to do with the availability of nectar in any region and that beekeepers in the sage ranges have come to predict their summer crop by the amount of rain received before definite dates in the spring.

Munroe (1929) believes that excessive rainfall may have a threefold effect on lowering honey yields: 1, confining bees to the hive; 2, washing out or diluting the nectar; and 3, providing excess soil moisture detrimental to secretion.

Soil Moisture:

According to Vansell (1931) soil moisture is one of the important factors affecting nectar flow. He stated that formerly, in the San Joaquin areas of California with a high water table, several weeds (spikeweed, **Centromadia;** jackass clover, **Wishzenia;** etc.) and even alfalfa yielded nectar abundantly, while at present, with a rapidly lowering water level, nectar secretion is almost negligible. Vansell (1940) found that soil moisture affected the quantity of nectar secreted in **Poinsettia** blossoms.

Littlefield (1941) stated that soil moisture, if not in excess, is very essential to the plant, not so much for the secretion of nectar, as one might think, but as a food carrier.

Shuel and Shivas (1953) reported that deviations in either direction from the optimum soil moisture level—the moisture equivalent—led to a reduction in nectar yield in snapdragon blossoms.

Light:

LOVELL (1924) reported sunshine as being detrimental to the secretion of nectar from lima beans. Too much

sunshine causes the plants to droop and checks the flow of nectar by evaporating the excess water from the surface of the plant.

Lovell (1921) stated that the secretion of nectar is closely associated with the amount of light the plant receives and that the force or energy required for the manufacture of food material is furnished by sunlight. Vansell (1931) lists length of day as one of the factors affecting nectar flow.

Light and Colony Weight:

Hambleton (1925) found a higher coefficient of correlation between hours of sunshine and net gain in colony weight than between intensity of solar radiation and net gain in colony weight. According to Park (1928a) the effect of sunshine (or shade) in honey production appeared to be slight—no correlations were found between light and increase in colony weight.

Braun (1945) attributed greater yields per colony obtained in northern latitudes to the longer days during the summer.

Shuel (1952) stated that over a period of two months, a quantitative relationship between weight of sugar secreted in nectar and the amount of solar radiation upon the plant was observed. **It would appear that duration of light is more important than intensity.**

Altitude:

Lovell (1921) reported that flowers at high altitudes tended to secrete nectar more freely than those at lower levels.

Vansell (1931) stated that altitude was one of the factors influencing variation in nectar flow. Altitude would include a complex of factors such as amount and quality of light, length of day, daily range in the temperature, etc.

According to Vansell (1940) pressures above atmospheric apparently increased the quantity of nectar in Poinsettia blossoms. In experiments, high pressures resulted in a decided increase in nectar over normal pressure, and secretion under reduced pressure was less than at normal pressure.

Wind:

Lovell (1924) reported that hot, dry winds unfavorable to nectar secretion are therefore unfavorable to honey production. He found (from data covering a 29-year period) that direction of wind in Iowa was of little importance in nectar secretion.

Vansell (1931) states that in the Sacramento Valley region, humidity is very low when the wind is from the north and relatively high during south winds, thus probably affecting nectar secretion.

Petropoulos (1938) indicated that winds in Greece affect nectar secretion, i.e., southwest winds from North Africa carry a vapor laden atmosphere below them. These winds would tend to dilute nectar by creating a higher relative humidity. From the available information, it would seem that the effects of winds are variable in different areas of the world.

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B & Z Library

The history of the beeswax industry

RUSSEL H. EICHMAN, Cleveland, Ohio

Early Beginning of Industry

THE BEESWAX industry is believed to be as old as man.[1] As far back as the Bronze Age, wax was used in the casting of ornaments and weapons. The object to be produced was molded of wax and encased in clay. Heat was then applied to the mold and the wax would melt and run off, leaving the shape of the product in the clay. The clay mold so formed was then filled with metal and the desired object was thus reproduced. Swords, spears, and other materials of war were oftentimes produced in this manner.

Art museums house many interesting art creations of bronze and other metals which had their beginning through use of wax. This form of casting known back as far as 2050 B.C. is called "Cere Perdii".[2]

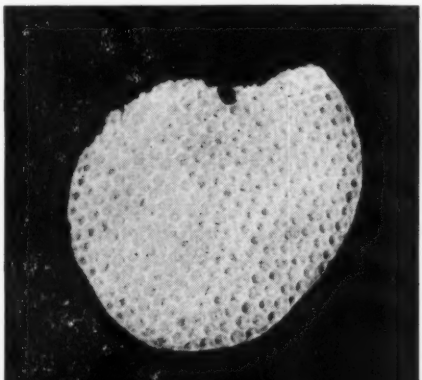
The Babylonians were the first to use wax for candles, which they burned in their shrines and other places of worship. History also records that sorcerers utilized beeswax for molding images of intended victims. Wax images were also used by the Egyptian wizards and witches to bring misfortune upon their enemies.[3]

In Egypt, wax was accepted as tribute from conquered peoples. It has been recorded that "Royal payments to Egyptian rulers were made in honey and wax".[4] One record states the following payment to the royal treasure: "331,702 jars of incense, honey and oil, 3,100 uten of wax."[5]

Aristophones, a Greek playwright living about 425 B.C., mentioned in his writings the "Kerapoles", or the wax merchants. Thus, even in this early time, merchants were finding it profitable to deal in wax. Its uses included modeling, writing tablets, sealing, and covering metals to prevent oxidation.[6]

Pliny, the Elder, born 23 A.D., wrote extensively on the bee and beeswax. He mentioned that the wax could be best clarified by boiling it in sea water and drying it in the light of the moon for whiteness.

Pliny wrote of wax brought from the Island of Corsica and the 200,000 pounds of wax yearly that its people paid as tribute.[7]



Beeswax has an ancient history.

Many early people made use of wax for medicinal purposes. In the middle ages, wax was used to cure ulcers. Also, wax when swallowed was supposed to cure the curdled milk in the stomach. It was also used to rub on stiff joints and aching muscles. A distilled beeswax was developed for which its makers claimed as many medicinal assets as the cure-all machines of the one-time medicine show. It was prepared by melting wax with sweet wine and then wringing the wax out of the wine by hand. This process was repeated seven times, each time new wine being used. The wax was then put in a retort with a red brick powder and heated. The resulting distillation was a yellow oil. It was claimed that this oil had powers to stop falling hair, remove pains in the back, cure toothache, worms, palsy, and distemper.[8]

DURING THE reign of Henry VI, there developed "profiteers in wax". The wax merchants found that their objects of molded wax were in great demand by folks to use as offerings and tributes. As a result, they were collecting exorbitant charges. In 1433, Henry VI issued an order to the effect that the merchants could only add three pence to the value of the pound

of plain wax. (This action might be taken as the origin of what we know today as OPA).

Two hundred years later, in 1580, Queen Elizabeth issued a decree which provided penalties for those persons found guilty of adulterating[4] wax. For anyone committing this offense, there was an assessment or fine of two shillings per pound—one half of the collected fine to go to the queen, and the other half to go to the party who purchased the faulty product. The Act provided that all makers must initial their products so that careful supervision by the government authorities would be possible. It might be said that this was the first fair trade law established for wax.[9]

The knowledge of beeswax was assumed to have been brought to this country by the settlers in 1620. The practices and rituals followed in their churches required candles, and it behooved them to obtain wax for the production of these candles. The Cherokee Indians found that they could trade wax to the "white face" and by 1706, they had built up a considerable trade.[10]

Research in Pioneer and Indian history discloses many statements concerning bees, honey, and beeswax. White men found many Indian tribes using wax. Records show that the Indians were using beeswax candles along the Wabash in 1821. However, white men were doubtless among them many years before and probably introduced them to beeswax.

There is a great difference of opinion as to whether or not bees could have been imported by boat from across the Atlantic. If honeybees were imported, their migration westward was remarkable. Early immigrants to the Oregon country reported they found bees as far west as the Rockies.

Many historians believe that bees were in America long before the white man arrived. Certainly, evidence shows that bees were found as far as the Rockies when the first settlers came upon the scene.

In 1826, 152 flat boats passed Vincennes, Indiana, on their way to New Orleans.[11] Included in the cargo of these vessels were 10,000 pounds of beeswax.[12] This is a most interesting occurrence in view of the fact that most of the northern part of Indiana, Illinois, and all of the territory beyond was still inhabited by the Indians, leaving a very small civilized country to draw from. It does point up the fact that beeswax was widely used, and in all probability even at this early date there was a small beginning of beeswax industry in this country.

[1]Worth, Albin H., **The Chemistry and Technology of Waxes** (Reinhold Publishing Corporation, New York, N. Y. 1947,) p.1. The original term wax came from the Anglo-Saxon word WEAX. This was the name applied to the honeycomb of the bee. Since the broadening of the number of waxes, it has come to mean all wax, whether liquid or solid.

[2]Ransome, Hilda M., **The Sacred Bee** (Houghton Mifflin Co., Boston, 1937), p. 35. Literal translation for "Cere Perdii" is covered with wax and set for a long time.

[3]Sutherland, Louis, **The Life of the Queen Bee** (The Beechhurst Press, New York, 1946), p. 111.

[4]Morley, Margaret Warner, **The Honey-Makers** (A.C. McClurg and Company, Chicago, 1899), p. 251.

[5]**Idem.**

[6]**Ibid.**, p. 81.

[7]Tickner, Edwardes, **The Lore of the Honey Bee** (Methuen & Co., Ltd., London, 1913), 10th ed., pp. 15-16.

[8]**Ibid.**, pp. 44-47.

[9]**Ransome, op. cit.**, p. 198.

[10]**Ibid.**, p. 272.

[11]Stewart, L. R., "Early Bees and Wax", **Gleanings in Bee Culture**, July, 1943, pp. 389-441.

[12]**Idem.**

"I just informed George that all his colonies had American foulbrood."

Photographing bees

W. W. WITTEKINDT, Bonn, Germany

UNTIL A FEW years ago I seldom took any pictures. Then during my study of biology, a friend talked me into participating in a course of micro- and macro-photography. This happened just at the time when the invention of the electronic flash gun gave this branch of photography hitherto unknown possibilities. At the same time a leading German camera work had developed a new photographic system consisting of a close-up focussing device connected with a reflex arrangement and long focus objective.

This combination of precision instruments enabled both professional and amateur photographers to take close-up shots within short intervals.

The author, W. W. Wittekindt, is shown here with an assistant, photographing bees on blossoms. The assistant is carrying an electronic flash unit, known in this country as a strobe light. Mr. Wittekindt uses a 35 MM reflex camera to record the activities of bees.

Photographing bees is not possible with any camera whatsoever, but it requires a whole set of apparatus and special devices. Furthermore you need great experience with bees and the knack to deal with them. Finally many exposures can be taken only at special glass bee hives, which I had used for years already to study the life of queens, workers, and drones.

Snapshots of animals must be clear, sharp, and intelligible statements of typical and atypical situations of their life. Even with a lot of experience a certain number of exposures are likely not to bring the desired results. Patience and idealism are, by the way, indispensable for successful shots.

Many situations in the life of house bees require long preparations for a shot, others can be fixed photographically without "rehearsal" during a bee hive inspection.

In "close-ups" great trouble originates from the limited depth of focus, which shrinks the more the shorter the distance is from camera to object. Thanks to the high luminous intensity of the electronic flash it is possible to stop down rigidly, but in the focussing hood of the one-eyed reflex device nothing is to be seen then. Therefore watching the object and focussing has to be done with open diaphragm. When the diaphragm is shut for the exposure the quick-moving bees may act in an unforeseen manner, and on the film quite another scene or no bees at all may be found. Bees in the hive are very sensitive against strong light, and therefore a focussing light cannot be used.

Let's talk about honey plants

HARVEY B. LOVELL, University of Louisville

Hive in a low meadow covered with a tense growth of corn salid

CORN SALID (**Valerianella**). A pressed specimen of this plant in bloom comes from D. A. Timson, Caledonia, Ohio. His interest would indicate that it is visited by bees in his locality. In Louisville two years ago, Norman Bishop placed three colonies of bees on a 20-acre patch of low meadow which was completely covered with corn salid in full bloom. The field was snow white with the bloom for a period of over two weeks in late April and early May. During this time two of the colonies filled a shallow super with corn salid honey which Mr. Bishop carefully extracted by itself. The honey was a light amber with a good body and a slightly strong but not unpleasant flavor. The combs were light colored, but not as white as clover combs. Mr. Bishop blended the honey with a much larger amount of clover honey and reported that the blend sold well. Since corn salid blooms just before the clovers, it is a valuable species for building up colonies in the late spring. It grows best in low, damp meadows where there are not too many large weeds. It is especially common in old corn fields which do not get plowed until late in the spring.

Crotalaria. I recently had a request to furnish information upon the Crotalarias or rattlepods as honey plants. When I was in Florida and adjacent states in August last year, I observed several species of this yellow-flowered legume in bloom. One is a very large species (**C. spectabilis**) with such large pea-shaped flowers that it would not seem to be of much value to the honey bee. Another species called giant striata is being extensively planted in South Carolina as a cover crop, and here it makes considerable honey. Professor David Dunovan of Clemson College speaks very highly of this Crotalaria and describes the honey as light amber with a mild flavor. Two different reports from Florida state that Crotalaria honey has a poor flavor and is used in baking. Anyone having information about the quality of this honey please write me.

Thyme. Roger Morse sends me several snapshots of wild thyme growing along the roadside in Grand Gorge, New York. The plant is very small and grows close to the ground, and has numerous small purple flowers. Morse adds, "It forms solid mats except for a few blades of grass. I have seen the plant cover stones as large as

(Continued on page 561)

XUM

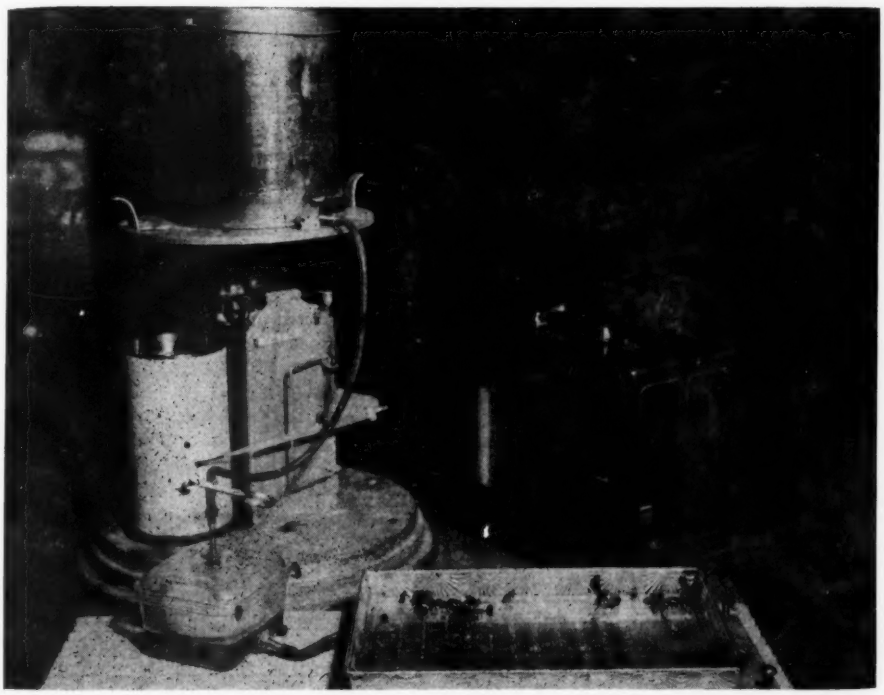
News

Filling honey cans at Miel Carlotta in Mexico.—Photo by R. B. Willson.

L. P. Baker (right) of Glencoe, Ills., gave a talk on beekeeping management at a recent meeting of the Cook-Dupage Beekeepers' Association near Chicago.—Photo by J. Sedlak.

reel

Mr. and Mrs. H. R. Swisher, Springfield, Ohio, and their honey exhibit at the Clark County Fair.—Photo by W. R. Hilbrink.



Artificial flower.—A large edition of the "artificial flower", developed by A. W. Woodrow of the Agricultural Research Service, is being visited by honeybees seeking the syrup in the plastic "flower". The square glass container, left, maintains a constant level of syrup in the flower, and is itself supplied from a reservoir. The quantity of syrup gathered is recorded automatically on graph paper, left background. U.S.D.A. Bee Culture specialists at Tucson, Arizona are using this equipment to determine the food preferences of bees as well as the influence of weather, insecticides, hive management, etc., on the quantity of nectar collected.—U.S.D.A. photo by Forsythe.

XUM

Editorials

Honey Packers and Producers to Promote Honey

THE FOLLOWING telegram may herald a new era in cooperation between the producer and the packer in promoting the use of honey nationally.

> "Nation's Honey Packers and Dealers have agreed on assessing on a voluntary basis 1c per can at handler level to be equaled by 1c per can at producers' level. Funds thereby derived to be spent by Honey Industry Council of America for promoting increased use of honey. Effective date August 1st."

This plan was first discussed at the National Beekeepers' meeting at San Jose, California, and had been approved at each National Meeting since then by the American Beekeeping Federation. However, up to this time too few packers had agreed to go along with this self-tax program to make it feasible to put into operation. Now some 33 packers and honey handlers have agreed to endorse this plan.

The program as it is discussed is a purely voluntary self tax of only one cent per can for each, the producer and the packer. Stamps will be available in denominations of 25c to $5.00 in two colors, one to cover the producer's contribution and the other to cover the handler's contribution. If both handler and producer agree to the tax, stamps will be placed on the invoice by the packer. The money from the stamps will be used by the Honey Industry Council to promote the use of honey. No doubt, a considerable portion will be forewarded to the American Honey Institute, the balance will be used to aid the American Beekeeping Federaton honey promotional campaign, which is patterned after the program that the Surplus Branch of the Production and Marketing Administration used so successfully during the year when honey was in surplus.

Bee Supply Manufacturers Have Contributed $20,000 So Far

The bee supply manufacturers started with a self-tax plan back in 1950 to aid the industry in promoting the use of honey. This was done by supporting financially the American Honey Institute and the American Beekeeping Federation's honey promotional campaign. During this time over $20,000 has been raised and turned over to these organizations. The inclusion of the packers and producers in a similar plan means that all segments of the industry are at last pulling in the same direction in a self-help program.

The amount of money that can be raised from this method will be small at first but if wisely used, confidence will be built in the industry. It is then reasonable to believe that the program may be enlarged as time passes and a really substantial fund raised to promote the sale of honey.

What Are You Doing to Sell Honey?

NOW THAT your summer honey crop is almost harvested, what plans have you made for marketing? Have you ordered those attractive point-of-sale posters from the American Honey Institute? Have you made plans for local honey promotion by tying in with National Honey Week, October 24th through 30th?

Don't wait. . . .write to the American Honey Institute Commercial Bank Building, Madison 3, Wisconsin, and ask for samples of their literature and other honey promotional items. Then go to your local newspaper and try to interest the Editor in a story-interview on bees, beekeeping, honey, and pollination. It is your duty to promote honey on a local level as the American Beekeeping Federation, the American Honey Institute, and the U.S. Dept. of Agriculture are helping you to promote the sale of honey nationally. Your help will make 1955 a successful honey marketing year.

Do We Need Another National Bee Journal?

YES. THE INDUSTRY needs a national journal devoted entirely to science so that the present journals can give more space to everyday beekeeping problems. Choosing an editor for a scientific bee journal would be easy. . . . .finances would be the problem.

A few years ago the Journal of Economic Entomology had a section devoted to apiculture. The late Dr. E. F. Phillips was largely responsible for the starting and maintainance of this section. This section has now been abandoned . . . . .probably for lack of support.

To those who contemplate reviving interest in a scientific journal for honeybees in the United States we offer our cooperation. But, it will take more than a typewriter, a desire to edit, and a scientific background to make such a journal successful. Support of beekeeping scientists is not enough. A scientific journal would need the support of the average beekeeper, who unfortunately lacks the time to read what is available. Television is competing with bee journals.

What is the answer? We urge the U. S. Dept. of Agriculture to sponsor a national journal of beekeeping science on a quarterly basis. If interest increases then publication could be on a monthly basis. In this way the latest beekeeping research could be brought to the attention of every beekeeper. Only the U. S. Dept. of Agriculture can successfully finance such a venture. Until this is realized we urge all scientifically interested American beekeepers to read the BEE WORLD. . . . .a beekeeping magazine that is actually a storehouse of information. Build up the circulation of this journal before trying to start another scientific journal, which, under present conditions can only be a weak sister.

Honeybees Can Tell Time

CONSIDERABLE NEWSPAPER publicity has been given to the experiment conducted recently by Dr. Max Renner, zoologist at the University of Munnich. He moved bees from Paris to New York City to see how they would react to the five-hour difference in time. In Paris, Dr. Renner had trained the bees to forage for sugar syrup from 8:15 to 10:15 P.M., Paris time which is five hours faster than New York time.

A room in the New York Museum was fixed up exactly like the room occupied by the bees in Paris. It was found that the bees after being moved to New York visited the new feeding place at 3:15 to 5:15 P.M. eastern daylight time which corresponds to their feeding time in Paris.

Some years ago it was necessary in our queen-rearing apiary to feed sugar syrup during a summer dearth of nectar. We did outside feeding in a long hog trough about 20 rods from the apiary. The feeding was done regularly at 1:00 P. M. sharp. One day the writer happened along as the apiarist was carrying a pail of sugar syrup from the apiary house to the feeding place. As the apiarist approached the trough with the syrup a cloud of bees were hovering about him anxiously awaiting their meal. None of the bees offered to sting. The bees visited the feeding place with clocklike regularity each day at 1:00 P.M. Honeybees may have a sense of time that humans do not possess.

XUM

Honey throughout the day

MRS. BENJ. NIELSEN
Aurora, Nebraska

Honey raisin bran muffins. — Photo courtesy Kellogg Co.

SOME BRISK, cool day a customer comes to the door and buys a jar of honey. Tucking it under his arm, as he turns to leave, he enthusiastically remarks, "This honey will sure go good on hot biscuits for supper tonight!" True, but far too many people think of that as about the only use for Nature's golden sweet. And what we could do to increase the volume of honey sales if we could change that one-groove thinking! So, I suggest he have his cook try honey in the muffins, as well as on them, and tell him how hungry that tantalizing odor is going to make him while they are baking! I suggest sweetening his coffee or tea with honey; recommend a honey-butter blend for the kiddies' bread to prevent those sticky drips, and subtly hint that if he is a devotee of the bedtime snack, there's nothing better to induce sleep than hot, honey-sweetened chocolate or cocoa. Then I tell him how we drizzle honey on fresh fruits and breakfast cereals, give him a honey recipe leaflet and fervently hope I've made a honey convert, or at least have aroused his interest.

If you, dear reader, still happen to fall in this category too, this month's recipes will help you use honey throughout the day.

Honey Raisin Bran Muffins

Two cups raisin bran flakes, ½ cup milk, ¼ cup honey, 1 egg, ¼ cup shortening, 1 cup sifted flour, 2½ teaspoons baking powder, and 1 teaspoon salt.

Combine raisin bran flakes, milk, honey, egg, and shortening, and beat well. Sift together flour, baking powder, and salt. Add to first mixture, stirring only until combined. Fill greased muffin pans two-thirds full. Bake in moderately hot oven, 400 degrees F., about 20 minutes. Yield: 9 muffins, 2½ inches in diameter.

Honeyed Shrimp Casserole

One and ½ pounds shrimp, 2½ cups sliced apples, 2 cups bouillon (made from 2 vegetable bouillon cubes), 1 medium green pepper, 3 tablespoons cornstarch, ⅔ cup cider vinegar, 1 tablespoon soy sauce, ⅓ cup honey, ½ teaspoon salt, a few grains of pepper, and 4 cups cooked rice.

Cook shrimp in boiling water 10 minutes, drain. Shell and clean shrimp. Cut green pepper into wide strips. Simmer green pepper, apple slices, and shrimp in bouillon for 10 minutes. Blend together cornstarch, soy sauce, cider vinegar, honey, salt, and pepper. Add to apple shrimp mixture and stir until thickened. Serve over rice. Serves 4 to 6.

Honey Dressing

One egg, ¼ cup honey, dash of salt, 3½ tablespoons lemon juice, ½ cup cream, whipped, and ½ cup coconut, toasted.

Combine egg, honey, salt, and lemon juice in top of double boiler. Cook over boiling water until thickened, stirring constantly, about five minutes. Chill dressing and fold in whipped cream and coconut just before serving over fruit salad. Makes 1½ cups dressing. Top with additional toasted coconut for garnish, if desired.

Live and Learn

by Propolis Pete

FROM time to time something comes up that could be the subject of one of these epic essays, but which does not have enough meat on it to make it the subject for a full discourse. So, let's make this sort of a "clean-out-the-ice-box" effort.

First of all comes word from a correspondent about a thousand miles from here, asking me to do something about a most distressing matter. There isn't much that I can do. It seems that this party likes to go to bee meetings to learn about bees, but lives so far away that the journey must be made by train. Unfortunately the last train out leaves quite early. This fact, coupled with a distressing habit on the part of the officers of the bee club to hold a lengthy business meeting before introducing the speaker of the evening, means that many times our eager beginner must go home before hearing anything about bees. Apparently the conversations before the meetings are of the "organ recital" brand—speaking of operations.

Well, our Gleanings reader has a problem. I too have been to many meetings where a lot of time is wasted on club business. A bee club has business matters. But why can't they have an Executive Committee with the authority to take care of ordinary business matters. The details of running the club can be worked out in committee meetings instead of boring the members and guests with trivial motions and votes. New members come from interested guests.

Now there is another little thing that came up. If you remember a while back I told you about an incident where a very aggressive and arrogant individual brazenly informed me that he would take one of my colonies for half its catalog value. I happened to mention that this party spoke with a very thick accent. Believe it or not, I was called down by a correspondent who told me that it was un-American to so much as infer that people who speak with an accent are of an inferior race. So, to make the record clear, let me say that some of my very best friends speak with an accent. As a matter of fact, we all speak with an accent. Me, for instance. I speak English with a terrific American accent. No, friends, let me go on record that it is no sign of inferiority when a person's speech betrays his origin. But when arrogance is coupled with an accent that shows that the owner doesn't even try to correct it, I think that such a person should go back behind the curtain from whence he came.

Now that this is over, let's get to a more pleasant subject. Here is a tip for you. Ordinarily I don't make plugs on this page, but I have been reading the revised edition of "500 Answers to Beekeeping Questions". It's worth half a buck of anybody's money, and if you don't get new ideas on many things that puzzle you, you should write a book yourself and see what it is like. If you clear up only one of the gimmicks that are bothering you, you will have been repaid many times over.

Getting back to my bees—no comb honey for me this year. That is, no comb honey for sale. I did manage to get some sections for our own table, and six of them were nearly perfect, but I didn't get enough to sell. Want to know why? Well, I went back to the book. Last year I did pretty well by violating all the rules of producing comb honey, and thought that I saw why I never was able to do it before.

So this year I added my experience to the methods given in the books of instruction on how to get comb honey, and the last I saw of that colony it was disappearing over the western horizon. It's funny, but none of my extracting hives even offered to swarm. This colony had a young queen, I gave them lots of room up to the honey flow, but the minute I put on the comb honey supers they started queen cells. It didn't do any good to cut them. They swarmed anyway, and even left the parent colony without providing for a replacement. The poor survivors had to start from scratch and build supersedure cells over some of the young brood left behind. But I think I saw something that will give me some of those superfine sections for next year. Will let you know then, if it works.

XUM

Beekeeping in Cephalonia, Greece

P. S. GHIOLMAN, Cephalonia Islands, Greece

THE BEGINNINGS of beekeeping in Cephalonia are lost in dim antiquity. It is certain, however, that bees were kept four or five hundred years ago in hives built with special fired clay tiles or slates of certain soft easily-worked local stone.

Beehives of this kind are to be seen yet, their inspection and harvesting being effected from the side opposite to their entrance which is made detachable.

The ignorance and superstition of our forefathers bequeathed us many curious customs and rituals which one ought to follow explicity if he is to succeed with bees. Some years ago strong was the belief among some old-timers that an abstinence of a day at least was imposed before attempting to open for inspection a beehive.

Our Island is in its majority a mountainous one with mild winters and variegated flora and offers good opportunities for the exploitation of bees in a still greater scale.

Movable-frame hives used are the old Dadant and Langstroth, this last one being the one adopted and propagated by the Greek Ministry of Agriculture.

The first blosssoms of the almond tree which are making their appearance by the middle of January bring to the bees the first timid tidings of the approaching spring. Colonies are beginning to build up and reach their peak by the second half of April when the first swarms are issuing. Then intervenes a period of dearth of a month and a half about, which is brought to an end by the blooming of the "thyme" and other shrubs of the **Labiatae** family. From those plants we secure the amber-colored deliciously flavored honey which is much sought after and finds a ready market everywhere in Greece.

Crops of 25 to 30 pounds per colony are usually obtained. There are, however, certain favored districts where the peak of the population is coinciding with the blooming of the thyme and far better results are obtained.

The manner in which swarms are caught here will be perhaps of interest. As soon as the swarm is beginning to issue, a reed basket is rubbed at its end and exterior sides with lemon tree leaves and is suspended to a nearby limb. The bees soon cluster on the basket. Still better results are obtained if the basket is treated with leaves of aloes tree (**Cytronella odoratum**) the fragrance of which instantly attracts the swarms even a distance away.

First swarms hived between 10 and 20 of April are usually building to a full ten-frame Langstroth hive and can even secure some surplus.

The only serious enemy of the bee here and a real nightmare to the beekeeper is a kind of big red wasp which at certain dry seasons are attaining great numbers and when the crops of currants and grapes are gathered having nothing to sustain their populous colonies are relentlessly praying upon bees.

Bees at first are attacked by them while flying or on the alighting board of every colony. As soon as, however, the entrance guards of a hive are weakened they all turn their efforts upon this particular hive and in spite of the strong hopeless defense our little beasts are opposing them, they get into the hive to pillage honey and kill and carry to their nests brood and bees and all.

There are instances of 50 or even more colonies massacred in this way in a few days.

For the hunting of wasps various sorts of traps baited with fresh fish, meat, or chickens' entrails are used. Many are killed while flying but for this purpose the beeman must be ever-present and use some sort of broom to beat them down.

A far better method is to find out their nests, made usually in walls and crevices, and destroy them by nightfall either by the use of an insecticide or by a lighted blow torch. Some prefer a more "warlike" method and are discharging their shotgun near upon the entrance of the wasps' nest. It seems that the impact of the hot fast moving gases of the discharge kills outright the insects and their nymphs.

HONEY REPORT (Cont. from p. 517) they are sold out of honey which brought them 16 cents per pound for white and 12 cents per pound for amber. The honey crop was extra good in Alabama and prospects are good for a fall flow. Tennessee also reports a good harvest.

Conditions have improved in Michigan where some good rains in July has caused alfalfa to yield heavily. While reports from this area are variable the outlook is good. Honey prices are not yet established but where sales are reported the prices are the same as in 1954.

The outlook for a fall flow is good in Indiana and the demand for honey is strong in the Hoosier state. In neighboring Ohio the crop is generally good to excellent. Here in Medina basswood yielded well for the first time in many years. In a few scattered areas the crop was poor because of dry weather. The quality of Ohio's honey is good and so are the prices received by the beekeeper. The flow is still on in many areas with alfalfa yielding well at the present time.

White sweet clover yielded well in Illinois, but it came to a quick end due to the hot weather. Much late swarming here, and unfortunately, prices are sagging in this state.

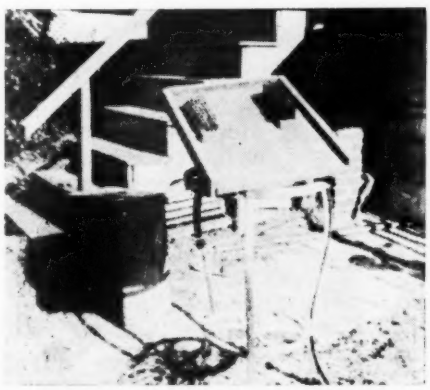
"Probably the best crop in 20 years" is the word from our reporters in Wisconsin. Wholesale prices for white honey in Wisconsin and Minnesota are holding firm at 14 to 15 cents per pound and 13 cents for amber.

Shortages of supers plagued beekeepers in many parts of Iowa where averages of 200 pounds per colony are reported. Extracting is in full swing there with the demand for honey good and prices firm. The outlook is dimmer in Nebraska where the hot weather cut short what might have been a bumper crop. Reports from Missouri are poor but prospects for heartsease are good.

A below average crop is reported in Montana with a very spotty harvest in Colorado. Here the answer is the same: the prolonged hot weather cut the flow short. However, recent rains have increased the hopes for some honey from alfalfa. The same holds true for Oklahoma.

Both Idaho and Oregon report a 50 percent crop, but only Oregon, of all the states, reported the weather as being too cool for a good honey flow. Central California harvested an exceptionally good alfalfa crop, and there the market is reasonably active with white honey bringing 11 to 12½ cents in wholesale lots.

A crop of about 70 percent of normal is predicted for Wyoming where heavy bee losses from insecticides have reduced chances for a normal harvest. Recent abundant rains improved prospects for a flow from cotton and wild flowers in Arizona. The bees are in excellent condition with little swarming to date, and as a result the local beekeepers have a bright outlook.



It's An Idea

Cleaning Bottoms

MILTON STRICKER, Annandale, N. J.

FOR CLEANING bottom boards there is nothing better than two wire brushes, one coarse for knocking off excess wax and one fine for removing paint scales. The type used by butchers to clean butcher blocks is the best for the first operation and if bottom boards are brought in when weather is cool, wax is removed easier.

FROM Foreign LANDS

Translated and Edited by Erika Barth

How Much Honey Can Australia Export?

AN AVERAGE yearly export of 8,000 tons of Australian honey can be made, according to a report in the AUSTRALIAN BEE JOURNAL. This figure evolved from the recent discussions between Australian beekeepers and a German Trade Delegation in Melbourne.

The object of the hearing was to obtain, if possible, for Australian exporters, an extension of time permitted for the shipment of honey to Germany. Under the present German regulations, licenses granted to German importers for Australian honey expire at the end of April. This means that a great deal of trade with Germany is lost because the bulk of the Australian honey crop cannot be gathered, transported to packing plants, packed and shipped by that date.

Australian Bee Journal. May 1955.

More Material for Historians.

THE INDIAN BEE JOURNAL is featuring a series of articles called "Beekeeping in Ancient India" by K. N. Dave. The author reviews ancient Indian literature and discloses how the beehive received its name as well as data on colony organization and behavior. Here is a chance to get some background material on the Indian bee (Apis indica) and the Giant Indian bee (Apis dorsata).

Indian Bee Journal. Nov.-Dec. 1954. Jan.-Feb. 1955.

Swarm Control.

ONCE WELL extended queen cells are discovered, take a new brood chamber filled with frames and foundation. After removing the brood chamber and placing it aside together with any supers, place the new brood chamber with the foundation onto the bottom board. Then lay an excluder on top to be followed by the supers. Now brush off the bees onto the running board at the entrance so that they can enter the hive. The beeless brood is then placed on top of all where the nurse bees will soon find it. The tedious job of hunting for the queen is thus avoided, and should the queen cells not be needed they may be destroyed a few days later.

The Scottish Beekeeper. June 1955.

Propolis for Toothpaste.

ALBIN JENKO of Austria has patented a process whereby an alcoholic extract of propolis is added to toothpaste and gargles. It is reported to improve the antiseptic properties of such preparations.

Jenko, Albin. Austrian Patent 172,063. 8-11-52.

Propolis in an Astringent.

A NEW ASTRINGENT containing propolis has been patented in Austria by Albin Jenko. This new preparation also possesses strong styptic and antiseptic properties but is not harmful to the human skin.

Jenko, Albin. Austrian Patent 167,862. March 1951.

Can Industrial Fumes Kill Bees?

YES, BEES can be killed via pollen collected in areas contaminated by fumes containing arsenic compounds. So reports M. Rousseau. His observations showed that arsenic compounds can deposit so heavily on plants as to kill bees as far as 20 kilometers or about 15 miles from the place where the arsenic poisoned fumes were produced. Pollen stored by bees in such areas contains arsenic and is toxic.

Progres agr. et vit. 134: 53-6(1950).

How many can you identify?

See correct answers on page 575

1. .....

2. .....

3. .....

4. .....

XUM

A Talk to Beekeepers

M. J. Deyell

We Don't Know Much

SOME OF US may think we know a thing or two about bees and beekeeping. Perhaps we do but most of us will have to admit that we actually do not know much.

As I get around to meetings over the country, beekeepers ask me questions that are difficult to answer. If I do not know the answer I tell them so. However, I assure them I will try to find the answer and write them the desired information. It may be somewhat humiliating at times not to know the answers to seemingly simple questions but I have found that it is better to say; "I do not know", than to put on a wise look and pretend to know.

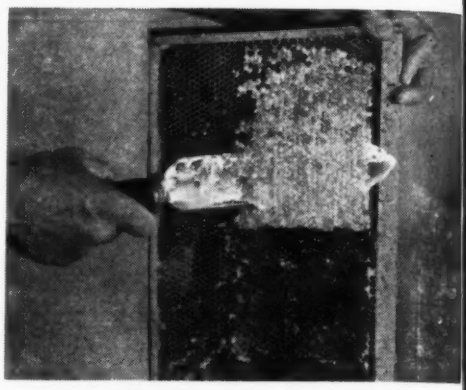
My Grandson Asks Some $64.00 Questions

Not long ago I was extracting some honey in the basement of my home. I have a two-frame power extractor and the necessary equipment for handling a reasonable volume of honey.

That particular day my grandson, Kenny, almost seven years old, wandered down into the extracting room. He was all eyes and ears and full of questions, some of which I could not answer. I began to realize how little I actually know about bees and honey. Two of his questions were; "How do bees make their honey" and "Where do they get it?" Now, the experts can likely answer the first question but perhaps not in language a seven-year-old can comprehend. I think we still have some things to learn about how it is actually done.

Regarding sources of honey, it would appear that we are not too well informed. Most of us, during the height of the honey season, are so busy preparing supers, putting them on, and checking colonies that we do not spend as much time as we perhaps should, in the fields nearby observing bees on various honey and pollen plants.

I have an apiary beside a railroad track. Last Sunday I walked along the track for about half a mile and noticed bees working wild carrots which is quite a pest in this vicinity. It is sometimes called Queen Ann's Lace. The bees were also working a pink blossom which was fairly abundant. I am having this plant identified. If I took more time to investigate the sources of nectar I might be surprised at the number of plants bees work.



Uncapping a comb cutting up instead of down.

Things that Puzzle Me

I have frequently been amazed at the amount of honey bees will store in a relatively short time. During late June of this year, while the basswood honey flow was on, I put on some shallow supers and visited the yard again in less than three days and found those supers jammed full of raw nectar.

During a very heavy honey flow, a shallow super would be filled in a day. Since the average nectar has a high moisture content, from 30 to 70 per cent, the bees must evaporate some of the water content out of the nectar down to the consistency of honey.

However, the raw nectar does occupy space in the combs and that is why it is necessary, during a heavy honey flow, to provide ample comb space so that the bees may spread the nectar out in the combs in order to evaporate or drive off some of the water content.

DURING THE past few weeks, the humidity has been unusually high. This condition has made it exceedingly difficult for bees to drive off the

excess moisture in the nectar. This may result in the fermentation of honey, unless beekeepers take measures to prevent it. Some commercial beekeepers are now using a fan on the floor of their apiary houses to blow warm air through the combs in the supers that are stacked up criss-cross so the air can get through. This does appear to drive off some of the excess moisture from the honey before it is extracted.

Another thing that puzzles me is why bees change their temperament so suddenly. During some days I can manipulate my colonies without smoke, or even without a bee veil although I make a practice of wearing a bee veil at all times while in the apiary.

A few days later I visited the same apiary and some colonies resented being manipulated. In fact, I have one or two colonies that may meet me half way. I attribute this to the strain of bees. I do detest cross bees even though in some instances the crossest colonies are the ones that store the largest crops of honey. It should be possible in bee breeding to combine gentleness with industry and I intend to change the temperament of these colonies, if possible, by requeening.

Taking Off Honey

I use bee escapes although I have tried acid pads. For the average beginner beekeeper, it seems to me the bee escape is the better method. Carbolic acid can be used but one has to be exceedingly careful not to get the honey tainted with the carbolic acid odor. This means using the correct amount of acid and leaving the pads on the right length of time. To do this properly requires some experience.

Watch for Small Holes Above the Bee Escape

I HAVE mentioned this in previous talks but it should be repeated. If all of your supers are properly made and fit tightly there is not much danger of leaving a small opening in the super or supers above the bee escape. However, I have found that one has to look, then look again, in order to make sure there are no openings.

A short time ago I placed supers of honey over bee escapes, then in a couple of days I went back to get the honey. The bees had found a small hole in the corner of one cover and when I went to lift the super off, I found all of the honey had been robbed out. There was one consolation, namely, the honey was in the apiary in other hives.

Uncapping Combs

When uncapping combs of honey with a steam or electric knife, I hold the top of the frame out to the right a bit, then shave the cappings off, beginning at the bottom and cutting up. The cappings then slide over the top of the knife. Some shave the cappings of the comb from the top down. A good deal depends on how one was taught or got started to uncap combs. It is true that when you shave the cappings downward, you take advantage of gravity and the job should be easier. When shaving the cappings up, one has to be careful to avoid cutting a thumb which at times may project beyond the edge of the top bar.

Straining Honey

I have become accustomed to using two thicknesses of fine cheesecloth.

Combs of honey well capped ready to be extracted.

This seems to do quite well, although some recommend georgette or marquisette.

A few years ago we had a letter from a beekeeper in California who uses a lady's nylon stocking which he tied over the end of the pipe which delivered the honey from the extractor by means of a honey pump, into the honey tank. I have never tried this but intend to do so as soon as possible. (Perhaps I can borrow or steal one of my daughter's stockings.) This beekeeper says that he used this nylon stocking to strain his entire crop but he didn't say how many pounds of honey he had. I would suppose that he would have to remove the stocking periodically and turn it inside out, in order to wash out the foreign matter such as bits of cappings, to permit the honey to go through.

Permitting Honey to Settle

It seems advisable to let honey stand in the tank at least a short time before it is drawn off. This gives air bubbles a chance to rise to the surface of the honey. It may be necessary to skim a bit of foam from the surface of the honey.

What To Do With Wet Combs

This has reference to combs from which honey has been extracted. If such combs are to be used again the same season, they should not be taken into a bee yard during a dearth of nectar. If they are to be put on hives of bees to be cleaned up, it is an advantage to do this late in the evening, placing one super on each inner cover with the center block removed, placing the outer cover on top. The bees will then get up into the combs of the supers and clean them up during the night.

A Foolish Mistake

A FEW YEARS ago I took 30 empty shallow supers out of which honey had been extracted, to an apiary early in the evening. As soon as I arrived the bees began snooping around the truck. I put the supers on as quickly as possible, but instead of placing a super on each inner cover, I removed each inner cover in order to put the super in place, then put each inner and outer cover in place. This, of course, took time and the bees soon were in an uproar. Besides receiving a severe stinging, the apiary was badly stirred up. Fortunately, night was coming on, so the bees cleaned up the combs before morning.

Had I slipped a super on each hive, on top of the inner cover with the center block removed, then placed the outer cover on top of the super given, the job would have been done before the bees got stirred up.

Beekeepers Should be Careful about Robbing

At the close of a heavy honey flow bees are likely to cause trouble if any wet combs or combs of honey are left uncovered. Sometimes a honey house door is not closed tightly and bees start to rob. It is then that they are likely to cause trouble and perhaps sting neighbors. It is perfectly possible to keep a few hives of bees in a city or town when they are located in a back lot, a reasonable distance from the street, with buildings or trees surrounding the hives so that the bees are forced to fly up and over when going to the fields. The owner has to be careful about manipulating the hives during the right time of day, when the bees are gathering nectar. If hives are opened on a cool morning when there is very little honey coming in, the bees are likely to resent this and cause trouble.

Moving Bees a Short Distance

About a month ago a beekeeper on the outskirts of Medina called to say that two of his colonies near his dwelling house flew out under a large apple tree and across the yard of a neighbor who was afraid of bees and was asking the owner to move them. This beekeeperer has 17 colonies on the same lot about 60 feet to the south, in a location where the bees have to fly up and over. The beekeeper wanted these two colonies moved a short distance and wondered if it could be done during the honey season.

I mentioned the two possible methods of getting the bees moved this short distance, first, moving the two colonies away two or three miles, permitting them to remain on the new location for about two weeks, then

(Continued on page 571)

From the Field of Experience

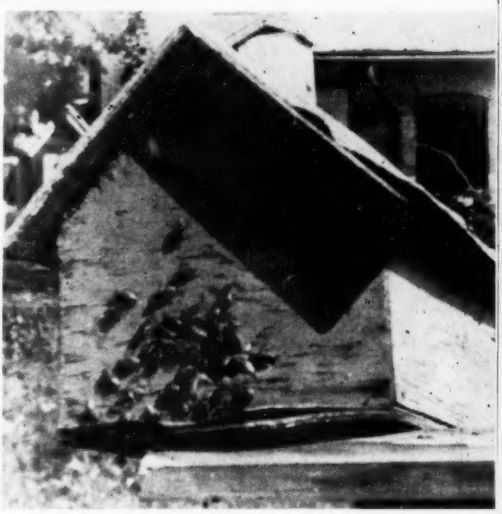
Bee Housing Shortage

EARL SEIDLINGER, Columbus, Wisc.

I'D ALWAYS been under the impression that bees had to have an inclosed place to shelter them from the elements, but evidently that is a fallacy. When they are hard up they'll set up housekeeping almost anywhere.

To be sure, a swarm on the loose will seek an inclosure first, but if none is available they'll build any place that suits their fancy. If a place they want is occupied, they're mean enough to drive out the occupants and take over.

Last summer after a pair of wrens had built their nest in a large bird house in the back of a store in our business district, the store manager said he saw a cloud of bees come, circle the wrens for a few minutes, then drive them off. The next day bees instead of birds were flying in and out.



Bees took over this wren house and filled it with honey.

Later when I removed the bird house it was full of honey from roof to nest.

But that's a case of bees confiscating and moving into an inclosure. Since then I've discovered three colonies that have built outside. The first was in an underbrush growth in the country. The second was on the underside of a roof edge of a church, not four feet from the entrance, and I was asked to get rid of them.

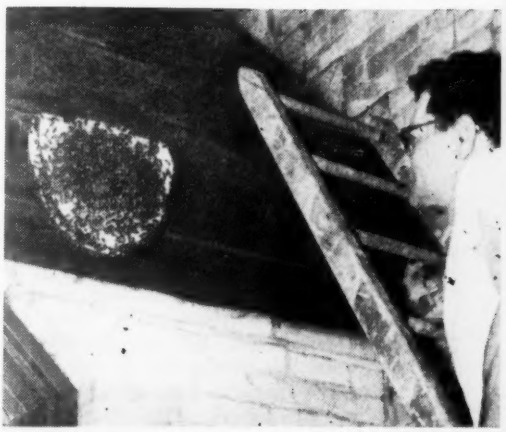
It was a simple matter, so the books said—just cut the comb from the roof and place it in a hive body along with other drawn combs. The rest of the bees will go into the hive and when it is dark, move the hive to your yard.

It didn't work out that way. I thought I removed the bees, but they had swarmed out leaving only a few nurse bees to attend the brood.

The third fresh air colony to build in the open, built under the cornice of a house roof in the city. Though sheltered from above and one side they did a nice job of annoying the neighbors. No one was ever stung, but everyone was afraid they might be, and I was again called to get rid of them.

Because the roof was high, I had to lean out of an attic window and break off the comb with a long stick. Then with an extension on a garden duster, I gassed the spot.

Neither of these three colonies had any inside shelter. None had a chance to live over winter because the first was robbed of its honey and the other two were destroyed before cold weather came.



Bees built on the underside of a church roof. Water ran down the outside comb, yet the bees raised brood.

B & Z Library

A System of Ventilation and Management

WALTER R. PLATT, Mt. Kisco, N. Y.

A BEGINNING beekeeper starts his beekeeping with a hundred years of experience to draw upon. That experience is an overwhelming and contradictory mass of information. This beginner kept his bees, read the bee journals and bee books, attended meetings of beekeepers, talked to the "old hands," and went back to beekeeping.

Wet hives in the spring, winter losses, under par honey crops, which auger holes, staggered supers, and what have you did not seem to cure. Ventilation was indicated, but how?

As time passed several ideas were gathered together, and put into use, with the result that the hives were dry in the spring, winter losses were lessened, the bees seemed stronger, and they seemed more content.

The narrow side of the bottom board is used the year around; giving an entrance three-eighths inch by the width of the hive. There is plenty of room for the bees to go to and fro, it is an easier entrance to defend, and in conjunction with the next item will give adequate ventilation. The bees are not apt to fill this space with comb.

The hole in the inner cover is left open the year around. The telescoping cover has two strips of shingle, about one inch wide, fastened to its long dimension. The butts of the shingle give an "upper-front" entrance about three-eighths inch deep by the width of the hive. With this arrangement hot or moist air is not trapped in the hive, it can rise and find a path to the outside with little likelihood of a draft, and with little interference to the bees own air-conditioning system.

A piece of board about one inch wide by the width of the hive (16¼-inch) is tacked to the side rails of the bottom board, this in effect increases the depth of the entrance from three-fourths inch, the width of the board of the brood chamber, to about one and three-fourths inch. This seems to give the bees more confidence, for they seem quieter on the combs when inspecting the hives; and they don't gnaw the foundation in the lower front corners of the frames. This needs further checking by others. One small piece of wood tacked to the side rails this summer could tell us.

The use of shallow supers (I like the six and five-eighths inch) for the honey crop and for the food chamber has much to recommend them, aside from their lighter weight and ease of handling. In this region the honey flows are of short duration and not very intense. The shallow super is more desirable because the bees will fill and cap a shallow super, where they might only half fill and cap a deep super; and if the honey flow ends, as it often does here, it is also the end of the honey crop. For this same reason the shallow super works out better as a food chamber. It permits reversing the brood and food chambers in the spring for swarm control, but gives you a crop of honey instead of a crop of bees. There is little point in raising an overflowing colony of bees when there will not be field work for them to do.

The conclusion drawn from this observation is that the size of the colony must be correlated to the available nectar supply of a location, in order to yield the maximum crop of honey from that location. Just a big colony is not enough. A nice strong colony in a deep and shallow super as the basic unit works well here.

When winter comes a strip of felt building paper, as wide as the hive is high, about 18 inches by 84 inches, does nicely on a one and one-half story hive. This gives a black hive for sun heat absorption, and stops unwanted drafts, during the winter.

The inner cover is filled with dry sugar, its rim will hold about two and one-half pounds. Some colonies will not touch the sugar at all, some will not bother the sugar until spring, and some will make the sugar disappear in a month's time, and may need new supplies of sugar several times during the winter. It is an easy job to lift the telescoping cover and inspect the dry sugar stores. You will be surprised to see bees working on the sugar on what would seem to be very cold days. All of the colonies so treated seem in much better condition in the spring for having "sugar in the attic".

Winning Exhibitions at the 1955 American National Honey Show, Springfield, Ill.

Class A—Liquid Clover Honey

1. Henry F. Puppe, Nebraska City, Nebraska
2. Wm. J. Wallanches, Downers Grove, Illinois
3. Al and Ted's Honey Shop, Helena, Montana

Class B—Light Colored Honey, other than Clover

1. Elmer L. Smith, Benton Ridge, Ohio
2. Willard W. Smith, De Land, Illinois
3. M. C. Morgan, Blue Mound, Illinois

Class C—Golden Colored Honey

1. Wm. J. Wallanches, Downers Grove, Illinois
2. Elmer F. Smith, Benton Ridge, Ohio
3. Kurt Cipers, Mt. Clemens, Michigan

Class D—Amber Colored Honey

1. Elmer F. Smith, Benton Ridge, Ohio
2. Wm. J. Wallanches, Downers Grove, Illinois
3. Kurt Cipers, Mt. Clemens, Michigan

Class E—Dark Colored Honey

1. Ira Bowers, Decatur, Illinois
2. Kurt Cipers, Mt. Clemens, Michigan
2. Wm. J. Wallanches, Downers Grove, Illinois

Class F—Comb Honey

1. Mrs. Ann Hathaway, Manhattan, Illinois
2. Ira Bowers, Decatur, Illinois

(Continued on page 560)

Sheeting Beeswax

HUBER H. ROOT, Associate Editor

SOME INVENTIONS are not inventions at all but discoveries. Some are developed from observation of strange details or side issues during the progress of work on something else. The x-rays illustrate the latter while comb foundation is a good illustration of the former.

The milking machine came after months and years of failure. The idea was there but the practical working out of the plan took years. The wax sheeter, known as the Weed Process sheeter for beeswax, is a good illustration of this class of inventions.

E. B. Weed, formerly of Detroit, later of Brantford, Ontario, conceived the idea of extruding beeswax in a sheet under heavy pressure. Again and again he tried to make his plan work but met with discouragement only. A friend, the late R. F. Holtermann, believed the idea had merit and advised Mr. Weed to come to Medina, Ohio. When he arrived he had little more than an idea and some plans for working it out, none of which had succeeded. With the help of two able mechanics, Alva Washburn and Herbert Blanchard, (the latter still living) the extruding idea was finally made practical.

Up to this time thin boards were dipped in water and then in wax. The thin sheets of wax were peeled off and the boards dipped again. Comb foundation made from such sheets was brittle and much time was lost in starting the short pieces of wax through the double roller that embossed the sheets with the shape of the bottom of the cells of the honeycomb.

Washburn and Blanchard thought that a water-cooled cylinder could be revolved slowly in wax and if the speed of the cylinder were slow enough, a sheet of wax could be peeled off the top and wound up, making a continuous sheet. It was comparatively easy to strip the wax off wet boards but they found it impossible to strip it off the surface of the metal cylinder. However, they succeeded in getting an inexhaustible supply of soft wax.

The next step was to provide a knife that would cut off the wax. The knife really scraped it off instead of cutting it off, and this second step transferred the semi-molten wax from the surface of the moving cylinder to the upper side of the knife.

XUM

A third step which quickly followed was surrounding the knife with what later was called a "throat", terminating in a slot one eighth inch wide. When this third plan was tested, the mechanics knew that Mr. Weed's extruding plan could be made to work. This was in the fall of the year 1895.

Later refinements consisted in spraying the cold water on the inner surface of the cylinder to secure uniform cooling and discovering the shape and size of the throat to produce the toughest possible wax.

Because Mr. Weed toward the end of 1896 secured a patent on his extruding idea, the machine was named the Weed Process Sheeter, although the credit for developing the machine itself really goes to Alva Washburn and Herbert Blanchard.

Almost immediately it was found that comb foundation embossed from sheeted wax from the new machine resisted stretching far better than any foundation made before. The reason for this is that the wax being extruded under extremely high pressure (nearly 1000 pounds per square inch) resulted in wrought wax instead of cast wax. There is almost as much difference between wrought beeswax and cast beeswax as there is between wrought steel and cast steel.

Not only was this achievement to revolutionize the sheeting of beeswax for the making of comb foundation but for dental purposes, for pattern work and several other uses.

It is highly proper, even though 60 years have elapsed, to acknowledge the work of Washburn and Blanchard in helping a discouraged—almost defeated—genius in making his dream come true. The modern sheeting of waxes should be called the Weed-Washburn-Blanchard process.

Federation Marketing Committee Plans

S. JOAQUIN WATKINS, Chairman,
Marketing Committee, American Beekeeping Federation

MANY BEEKEEPERS are wondering what the Federation is doing in the way of honey promotion work and how the Marketing Committee works.

Here is a brief outline of the Marketing Committee: It consists of a general chairman, a chairman for each region of the five divisions of the Agricultural Marketing Service (this is very important during those years in which we have a surplus and can obtain the aid of the AMS in selling our crop), State Marketing Committee Chairmen, and most important of all, the Local Committee Chairman whose performance is vital to the success of the entire operation.

In order to put the promotion on a national basis the Federation is contacting the members of the food industry and grocery trade by mailing to them a honey sales brochure. This will not only alert the food industry regarding "Our Promotion" and National Honey Week, but it will help them merchandise honey and pave the way for the honey salesman.

To stimulate interest in better honey displays as well as to assemble a collection of honey display photos, the Executive Committee of the Federation authorized a honey display photo contest with suitable prizes and duplicate prizes for the store managers of the winning display photos. For complete details consult your favorite bee journal (August issue).

Copies of last year's sales kit are still available and may be obtained from Mr. Robt. Banker, Cannon Falls, Minn., or myself. A supplement containing additional radio, TV, and newspaper material will be published.

Honey is currently selling at the best prices in years. Continued effort on the part of the members of the honey industry and the "individual beekeepers" will help maintain this favorable position. It is to the interest of all the industry for every member to "Talk Honey, Publicize Honey, Promote Honey" . . . .

Causes of Winter Loss

HOWARD A. PIKE, Apiary Inspector, Rhode Island Dept. of Agriculture

OUR HEAVIEST losses of winter colonies are not always due to the extreme weather. There are other factors which, if not corrected in the fall, will cause the death of a colony when cold weather comes. The extreme cold is the last barrier which the unprepared colonies will not be able to hurdle. If the colonies fail to die out completely, they will probably be so weakened that they will be a total loss to the beekeeper the following season, as far as gathering a honey crop is concerned. It will take most of the season for them to build up again to be strong enough to winter properly unless they are given help by the addition of a package of bees or unless they are united with some other colony.

Most winter loss can generally be blamed on the beekeeper's failure to properly obey the laws of nature or to a lack of knowledge or indifference. Foremost in the causes of losses is the removal by the beekeeper of too much honey from the hive for his own use. This leaves the bees with insufficient stores and exposed to starvation. Another very important cause is leaving poor stores in the hive which are high in resinous gum or which contain honeydew. Honeydew is an excretion from insects known as plant lice. These poor stores, if not replaced by good honey or sugar syrup, will very probably cause dysentery before winter is over and bring death to the entire colony.

Colonies have been known to starve with plenty of honey in the hives because of lack of protection from the cold wind. They consume all the honey within reach of the cluster, but as the cold becomes too severe, they cannot keep the temperature high enough to move around on the comb to another supply. If the extreme cold weather continues for a long period, they will freeze to death. Protection of the hives from the co'd winds therefore, is most essential. Otherwise, the bees will use up what stores they have before spring and then both honey and bees are a total loss.

Random Observations

REV. W. R. PHINNEY, Millerton, N. Y.

OFF AND ON for the past 30 years, I have kept bees. As a boy in Massachusetts, I kept two or three colonies, disposing of them when I went away to college. Some time later, when I was established in my chosen occupation, I resumed work with the bees and, except for a five-year hiatus when Uncle Sam sent me hither and yon, I have had from one to 30 colonies. At present, I have 20 and have solemnly vowed not to increase beyond this amount.

During this time, I have settled upon two or three practices which may be of some use to others who are not commercial apiarists but are similarly situated.

Keep Grass Cut Around Hives

My bees are located in a more or less abandoned vineyard on a farm outside the village where I am stationed. I have come to the conclusion that one really important exercise is for me to keep the grass and weeds mowed in my bee yard. When a colony of bees sits amidst high grass, the heat of a sunny day will build up about the hive much as if that hive were sitting in a packing box. Keeping the grass cut insures some circulation of air about the hive if there is any air stirring at all.

Too Much Shade Detrimental

In this locality, the placing of colonies in a shady place is a mistake. Hives so placed are likely to harbor colonies of ants above the inner covers. Bees from such colonies invariably get a late start in the morning. No doubt there are sections of the country where shade, either natural or artificial, is necessary, but not in the foothills of the Berkshires.

We are usually told that beehives should be painted white or a light color. Mine, bottom boards and all, get a generous coating of creosote, the kind used to impregnate fence posts.

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They do not present a particularly pleasing appearance, but they are durable. The covers get a good grade of aluminum paint. The bees, by the way, do not in the least object to creosote, even when it is applied while they are flying.

My colonies are numbered. After trying several methods, I settled upon the scheme of numbering the cover only. If I make a division or unite two colonies, the cover goes with the colony I wish to bear that particular number. I have found a red lumber crayon suitable to mark the covers. If, when I inspect a colony, I discover the number to be growing faint, I re-trace it with my crayon.

Handy Tool Carrier

After trying all sorts of containers for my hive tool, smoker, veil, hammer, bottle of matches, and record book, I have become attached to a half bushel galvanized pail, the sort that is shallower than its greatest diameter. If I need my hands to carry thngs, the bail of my pail fits over my arm. If I have a swarm to hive, I dump the contents and use the pail to gather the swarm. It is light, convenient, and inexpensive to buy.

I had the unpleasant experience this past fall of getting a quantity of honeydew in the supers which I left in place until late summer. The farmer who owns the land where my bee yard is located remarked upon the great number of bees swarming through his corn field. I suspect the bees of gathering juices exuded from the corn. The taste was not bad, but the color was very nearly that of roofing cement.

This spring, I slipped a shallow super of this honeydew under each one of my colonies, next to the bottom board. Pretty largely as a consequence of this "booster" shot, my colonies were, with a single exception, at swarming strength by the first day of May. Clover did not bloom here until June 5, and in the intervening period my bees gave me no little difficulty as I sought to keep them in check. Nectar was coming in steadily.

A Trouble Maker Trapped

I have had trouble from time to time with skunks. Sometimes I have trapped them and sometimes I have fenced them out. Last season, something bothered several of my colonies and I tried small individual fences about the molested hive entrances. Then I put out traps. My troublemaker turned out to be a half-grown woodchuck. What he was after I still cannot decide, since he scratched not only at the entrance, but along the sides of several hives. Once he was eliminated, I had no further trouble.

What is puzzling me at the moment is the fact of numerous grass snakes living under my hive bottoms. They all seem fat and lazy. Are they feeding on drones or on workers? If they are after the drones, I shall take care not to disturb them. If I discover that they have a fondness for workers, I shall embark on a snake-hunting program.

HONEY SHOW **(Cont. from pg. 557)**

3. Rocke Apiaries,
   Eureka, Illinois

Class G—Chunk Honey

1. Wm. J. Wallanches,
   Downers Grove, Illinois
2. John A. Larson,
   Taylor Falls, Minnesota
3. Elmer L. Smith,
   Taylor Ridge, Ohio

Class H—Granulated Honey

1. Willard W. Smith,
   De Land, Illinois
2. Henry F. Puppe,
   Nebraska City, Nebraska
3. John A. Larson,
   Taylor Falls, Minnesota

Class I—Beeswax

1. Elmer L. Smith,
   Benton Ridge, Ohio
2. Wm. J. Wallanches,
   Downers Grove, Illinois
3. Carl Soder,
   Stratford, Iowa

Class J—Honey Use Exhibit

1. Imogene Bowers,
   Decatur, Illinois
2. Helen's Apiaries and Mrs. L. Rocke,
   Welch, Minn. Eureka, Ill.
3. Mrs. M. C. Morgan,
   Blue Mound, Illinois

American Beekeeping Federation Trophy, awarded to Henry F. Puppe, Nebraska City, Nebraska.

Southern States Beekeepers' Federation

THE ANNUAL conference will be held in Asheville, N. C., October 10 to 12.

The first two days will be fully scheduled with a good program. On October 12 there will be a guided tour through the Smokies with the evening meal at Cherokee Indian Reservation. The meal at $1.25 per plate will be served by Indians.

Asheville is the home of Biltmore Industries, started as a little craft school in 1901 by Mrs. George Vanderbilt. She was greatly interested in seeing the mountain people carry on and utilize the trades and lores handed down to them by their Scotch and English ancestors. Biltmore Industries is open to visitors.

An unusually interesting and intriguing program for hobby and commercial beekeepers also their wives is in the making and will appear in the October Gleanings.

Sessions will be held in the George Vanderbuilt Hotel. It is suggested that those planning to attend the conference write the Hotel for reservations. Rates are, single $4.00, double $7.00 and twin $8.00.

Banquet Hall at Biltmore House.

LET'S TALK ABOUT HONEY PLANTS

(Continued from page 541)

12 inches in diameter. Farmers hate it, cows won't eat it, and there appears to be no good way of killing it. Although the honey has a strong minty flavor, it is one of the best producing little honey plants in New York. One or two beekeepers, I know, strip their colonies of all their honeys in other areas and use thyme honey for winter feed." Some people like the characteristic minty flavor of thyme honey. I have received several samples from beekeepers both in New York and in Massachusetts and find the flavor very interesting.

New Manager for California Honey Advisory Board

MONA SCHAEFER (left) replaces Kermit Wilson as manager of the California Honey Advisory Board. The new manager comes to the board with good experience in home economics. Gleanings takes this opportunity to wish Mona Schaefer lots of success in her new work.

Bee Facts

(A Digest of Scientific Research)

Edited by Walter Barth

Rare Pollination:

A RARE CASE of insect pollination among the sedges, normally wind pollinated, has been reported by Dr. E. E. Leppik of Augustana College, Sioux Falls, South Dakota. The white bases of the upper leaves of **Dichromena ciliata** function as petals, imitating a white corolla of an ordinary flower. This structure is clearly distinctive and attracts pollinators from a considerable distance. Stingless wild bees, bumblebees, and honeybees were regular visitors, but no moths, butterflies, or flies were recorded on **Dichromena.**

Dichromena ciliata is a hitherto unknown pollen plant for bees. It is widely distributed in tropical Central America and is frequently visited by pollen-collecting honeybees. Its pollen grain is easily distinctive under a microscope and can be used, therefore, for identification of honey types.

Leppik, E. E. Dichromena Ciliata, A Noteworthy Entomophilous Plant among Cyperaceae. J. Botany. Vol. 42:5. 455-458, May 1955.

A Disease of AFB is Discovered and Isolated:

RESEARCH SHOWS that different strains of American foulbrood exist and the arguments in favor of discarding the sulfa treatment are strengthened.

A bacteriophage (a bacteriophage is a virus which attacks a bacteria) has been isolated by Gochnauer in Minnesota, which destroys some strains of American foulbrood. It has long been suspected that strains (varients) of American foulbrood existed but this research makes the theory a fact.

Beekeeper success with sulfa has varied tremendously and the reason for this, may in part, be that different sections of the country may have different strains of the bacteria. A strain of American foulbrood from Georgia showed very definite resistance to sulfa, according to a Georgia beekeeper, while at the same time it was destroyed by bacteriophage. The fact that some American foulbrood may resist sulfa makes the case for burning the disease stronger, for, if a colony is not helped by sulfa it will continue to go down hill and the danger of spreading the disease is greatly increased.

The fact that the bacteriophage destroyed one strain of American foulbrood does not mean that this will be a new method of control for the disease. It has been demonstrated that other strains of American foulbrood live contentedly with the bacteriophage. This, together with the fact that the functioning of bacteriophages are not well known makes the thought still more impossible.

The author suggests that it may be possible to separate various strains of American foulbrood according to their susceptibility to bacteriophage and thus to trace the origin of an infection.

Gochnauer, T. A. The Isolation of a Bacteriophage (Bacterial virus) from Bacillus larvae. Bee World 36:101-3. 1955.

Bumblebees vs. Honeybees:

BUMBLEBEES were found to be more efficient than honeybees in pollinating red clover, according to Dr. B. Elwood Montgomery of Purdue University, Lafayette, Indiana. The advantages of bumblebees over honeybees varied from 35 per cent to 500 per cent depending upon the plots.

The percentage of red clover flowers producing seed was always much higher in plots pollinated by bumblebees than those pollinated by honeybees. These tests, using honeybees and bumblebees, were conducted throughout the year by producing crops of alfalfa in the greenhouse besides the regular crops in the field.

Montgomery, Elwood B. Ecology of Bumblebees and Red Clover Pollination. Progress Report of the Ind. Agric. Exp. Sta. 1954. Pgs. 35 & 36.

American Honey Institute News Notes

HARRIETT M. GRACE, Director
Commercial State Bank Building, Madison 3, Wisconsin

HOW MUCH time does the typical homemaker spend in the kitchen? Just 90 minutes a day. And that is the grand total, including all three meal preparations, and baking time!

Show that figure to grandma and listen to her gasp. She recalls the hours of potato-peeling, jelly-making, bread-kneading, pea-shelling, pie-baking, and butter-churning that used to be demanded of her. By our standards, she was nothing more than a scullery slave.

But—times change. You will be "grandma" 20 years hence. And you will be the one who gasps when you learn that your daughter and granddaughters spend only 15 minutes total time per day in their kitchens.

For that is the estimate by Duncan Hines, a national food expert. By 1975 the typical homemaker in America will spend only 15 minutes a day in food preparation in her kitchen.

Here is what will make it possible:

1. Disposable cookware as well as disposable service dishes.
2. Delivery of complete meals to the home.
3. Supermarkets that carry many times more items than they do today.
4. Foods packed in boxes that have their own heating or cooling units so the homemaker can cook or cool them instantly in their own packages.

That sounds like a fantastic dream. But 20 years ago so did the home freezer, or the home clothes dryer, or the built-in range. Sometimes dreams do come true, you know.

All this blows a fair wind for honey. This ready-to-eat product of ours is a natural to keep up with the times. It lends itself beautifully to the art of the quick meal.

No fuss, no special preparation, no special storage—no nothin' to get in the way of preparing a fast dinner. Honey is ready to use as it comes in the package.

All that is required is that the homemaker have the **habit** of using honey.

That's our field, the American Honey Institute's special forte. Our motto is simple. It is strong because it is simple. Show the homemaker **how to use honey daily.**

That is the basis of all our promotional work, our tested recipe programs, our news releases, our contacts with other industries, our tremendous correspondence with the curious housewives.

As many meals will be delivered pre-prepared to the home, we constantly preen our contacts with other food industries, to urge the use of honey in their finished manufactured dinners.

Not just the uses of honey are important. In light of this new trend toward the lightening of the homemaker's duties in the kitchen, the ease, the convenience of cooking with honey is paramount. Each honey recipe must be simple to the extreme. No fussiness, no bother, no sticky mess.

We send out many recipes that are used with the ready-mixes.

We point out how easy it is to use honey directly in beverages, over ice cream, in meringues, as a sandwich spread, as a salad dressing.

We remind the homemaker that honey can be stored simply on the cupboard shelf, with no refrigeration needed.

The proper use of honey can help lessen the homemaker's many kitchen duties. It is our job to show the homemaker how she can use it properly.

But—**It is your job to supply the honey in a convenient, easy form.** Containers that are easily gripped so they do not slip out of the customer's hands. Honey that is pure, clean, attractive to buy. Honey labels that give quick honey uses, or refer the housewives to our offices for recipes.

All this is your field. When the homemaker comes to spending those 15 minutes in her kitchen 20 years from now, we must make sure that a few of those minutes are devoted to honey.

Just News

The **Westchester County Beekeepers' Association** will hold a joint meeting with the **Bronx County** and the **North Jersey Beekeepers' Associations** at the home of Mr. and Mrs. Henry Kroger, 3661 Eden Terrace, Bronx, New York. (Near Dyre Avenue and Boston Post Road) at 2 P.M. sharp, September 11. Refreshments will also be served. An invitation is extended to all beekeepers and their friends. Let's make this a good turnout, fellow members.—Mrs. Alfred Roth, Pub.

The **Georgia Beekeepers' Association** will hold their annual meeting on October 17th and 18th at Homerville, Ga. —C. H. Herndon, Sec.

After considerable delay **the 1954 issue of the State Apiarist Report** is available for distribution. This publication is available upon request from F. B. Paddock, Extension Apiarist, Iowa State College, Ames, Iowa.

Correction: Page 466 of August, 1955 issue, in article entitled "More Short Cuts in Queen Rearing", the address of the author should be Saratoga, California.

The September meeting of the **Middlesex County (Mass.) Beekeepers' Association** will be held on Saturday, September 24, 1955, at the home of Mr. and Mrs. Charles Hemboldt, Westford, Mass. This is the final outdoor meeting of the season. There will be a drawing for a lucky winner of the Club Hive. The hive was started in April with package bees and has made excellent progress during the summer months. One super of honey has already been removed from this hive. There will be other gifts presented to lucky members of the Association.

The August meeting was held on Saturday at the home of Mr. and Mrs. Alymer Jones in Malden, Mass. A good crowd was on hand to inspect the hives of our treasurer, and also the Club Hive. After the business meeting, the members and guests enjoyed a picnic supper, and ice cream and coffee provided by the Association. Many thanks to Al, and his good wife Martha, for their hospitality.—L. C. Proctor, Secretary.

The Megachiline Bees of California, a new bulletin by Charles D. Michener and Paul D. Hurd provides usable keys, descriptive comments, and data on distribution and floral visits. The bulletin, which sells for $3.50, can be purchased from the University of California Press. Ask for Bulletin of the California Insect Survey, Volume 3, 247 p., illus. (paper).

Mr. Fred W. DeTemple of Darian Center, N. Y., said to have been the state's oldest beekeeper, died Jan. 18 at the age of 88. Mr. De Temple kept bees for 66 years and was a faithful Gleanings reader for almost half a century.

New Australian Bee Book — The third edition of "Bees and Honey" has just been issued by the New South Wales Department of Agriculture, according to a report in the January-February, 1955 issue of THE SOUTH AFRICAN BEE JOURNAL. This 140-page beekeeping booklet, prepared by W. A. Goodacre, contains 16 chapters of useful information. Particular emphasis is placed on migratory beekeeping which is very important in Australia. The reportedly well-illustrated booklet gives some of the latest ideas on handling the honey crop from extracting to developing a market.

Pomona County Fair.—Perhaps in no other fair in the country is more emphasis placed on the apiary division than at Los Angeles County Fair in Pomona, Sept. 16 through Oct. 2. Here. bees and their products have an important place in the beautiful palace of agriculture and here, each year, foremost beekeepers of the Southland join forces in a competitive exhibit that wins the attention of the million and more visitors.

The veteran superintendent, **George**

Adamson, is again in charge. Approximately $1,500 is offered in cash and trophy awards. Entries are divided into four major classifications. The first covers feature displays of honey, bees, and bee products entered by a producer or producer organizations. First prize is $170. Prizes run to fifth place and $100.

There is another class confined to honey specimens both extracted and comb and includes all popular varieties of the area. A third class is provided for beeswax including forms and designs. The wax is judged on color, texture, cleanliness, odor and number of cake cracks.

A class for baked goods, which must be sweetened with at least 60 per cent honey, lists various kinds of breads, rolls, cookies and cakes. The final classification provides awards for candies made with honey. Six different kinds of candy are specified. There are also sweepstake awards for the last two classes.

Realizing the promotional value of the apiary exhibit, bee men are anxious to cooperate and the result is an exceptional display. Each fall it grows larger and this year it promises to reach its climax for attractiveness, variety and participation, according to Superintendent Adamson.

Mr. Raoul Alphandery, chairman of the Bee Trade Syndicate of France and brother of George Alphandery, editor of "Gazette Apicole", has been promoted to the rank of knight of the Legion of Honor.

The summer meeting of the **Ohio State Beekeepers' Association** at Blue Ball, Ohio, July 30, was one of the best held recently. That section of Ohio is blessed with a good honey flow and beekeepers were enthusiastic over the crop. Some of the beekeepers scheduled to appear on the program were so busy with their bees that they could not attend the meeting.

(Continued on page 572)

Katznelson Gets New Post

The Canadian Dept. of Agriculture has announced that the Civil Service Commission has approved Dr. H. Katznelson, of the Bacteriology and Dairy Research Division, in his appointment as Chief of that division to succeed Dr. A. G. Lochhead, who retired on June 21.

Dr. Katznelson is famous for his research with bee diseases, particularly Nosema disease, an adult bee malady. The latest report on his research appears on page 275 of the May issue of Gleanings.

Dr. Katznelson, new chief of the Bacteriology and Dairy Research Division joined the department in 1940 after a year's post doctorate work at Cornell University. He was made head of the unit of general microbiology in 1951.

Katznelson was born in Russia in 1912 and after the Russian revolution managed to leave the country arriving in Vancouver in 1920. He obtained his B.S.A. degree from the University of British Columbia in 1934, and his M.S. in soil biology at the State College of Washington in 1937. This was followed by a scholorship with Dr. S. A. Waksman, a noted soil microbiologist, under whom he obtained his Ph.D. in 1939.

Dr. H. Katznelson

Asked & Answered

Liquid Capacity and Honey Capacity of Jars

Question: What is the difference between the liquid capacity and the honey capacity of jars? The liquid capacity of a jar holding one pound of honey, net weight, would be 12 ounces according to my understanding; therefore a jar having a 10-ounce or 11-ounce liquid capacity is too scant. Am I right?—Massachusetts.

Answer: The liquid capacity is figured on the basis of pure water, and, since the specific gravity of honey is nearly 1.5 or one and a half times as heavy as water, the honey capacity of any container can be figured by multiplying the given liquid capacity by one and one-half. A jar of 12-ounce liquid capacity would therefore hold between 17 and 18 ounces of honey. A 10-ounce jar liquid capacity would hold 15 ounces or a little less of honey. A 11-ounce jar liquid capacity would be just about right for one pound of honey. A nine and one-half ounce jar liquid capacity is just right to hold 14 ounces of honey.

Fermentation in Honey

Question: I have had trouble with fermentation in honey left over from previous seasons, even though the honey was well-ripened before it was extracted, having been left on the hives for some time after it was sealed. What causes this trouble?—Australia.

Answer: As a rule trouble from fermentation does not occur in well-ripened honey but sometimes this trouble may occur in honey that is apparently well ripened. Honey that is left on the hive for some time after it is sealed, or honey that is brought into the extracting house and stored for some time before extracting, may deteriorate because it absorbs moisture from the atmosphere. This is more liable to occur when the nights are cool or when the weather is damp. Cold honey may bring about condensation of moisture on the surface of the combs when the temperature rises and the amount of moisture in the air is increased. The combs of cold honey act in the same way as a glass of cold water in a warm atmosphere, causing moisture to condense on its surface. Fermentation in honey that is apparently well ripened is sometimes brought about by the peculiar character of the honey flow. During a slow honey flow, no doubt more spores of fermentation are stored with the honey than during a rapid honey flow. Therefore, if such honey is not unusually heavy, fermentation may take place if it is kept over until the next season. When honey starts to ferment it should be heated to 160° F. by placing the cans in a tank of hot water and allowed to remain at that temperature for only 10 or 15 minutes until the yeasts are killed. If fermentation has gone too far, resulting in an acid taste to the honey it may not be possible to get rid of any acid taste. It should then be sold to bakers or made into vinegar. Bakers can use a honey slightly acid in flavor, but the fact should be explained at the time of sale. Honey that has an acid flavor or has fermented will have to be sold at a less price than honey not fermented. Again, it may and often does occur that a well-ripened honey when granulated will start to ferment in the can. This is because the levulose separates from the dextrose crystals and this levulose of too high a water content starts to ferment. A well-ripened honey may contain yeast spores and it is these in the levulose that start fermentation.

Comparison of Food Value

Question: What is the food value of honey compared with that of beef or eggs, or some of the other staple foods?—Pa.

Answer: In comparing the food value of honey with beef and eggs it is important to remember that beef and eggs contain a high percentage of protein, which can be utilized in the body in repairing worn-out tissues, while honey does not contain protein but is an energy-producing food. Honey should therefore be classed with the fuel foods which supply the body with energy and not among those whose function it is to build and repair the body—that is the "tissue-formers" as they are sometimes called. The energy value of honey is about 1485 calories per pound. The energy value for eggs is about 635 calories per pound, and that of beef ranges from about 545 calories per pound up to about 1100 calories per pound, according to the cut.

Extracting Honey from Food Chamber

Question: I have been using two stories for building up in the spring. After the queen is put below and the second story is filled with honey we have extracted some of these combs and found some of the honey dark with a poor flavor. Do other beekeepers extract honey from these dark brood combs, and if so, how do they dispose of the honey?—Minnesota.

Answer: It is doubtful if the discoloration and difference in flavor you noticed in this honey was caused by the honey having been stored in combs from which brood had emerged, but instead it is probable that the combs from the second story contained some fall-gathered honey which gave it a different color and flavor from that stored later. It is true that honey extracted from dark combs may be slightly inferior to that extracted from white combs, but as a rule the difference can not readily be detected.

Moving Bees During Freezing Weather

Question: Can I move colonies of bees which I have purchased during the freezing weather, or will it be advisable to wait until spring?—Iowa.

Answer: Bees can be moved during freezing weather without perceptible injury to them. The entrances should be closed with pieces of wire screen and the moving should be done with the least possible disturbance. The screen should be taken off immediately after the hive is on its stand in the new location so that the colony will quiet down as soon as possible.

Size of Food Chamber

Question: Which do you think is better, the half-depth super or the regular full-depth extracting super. Also, should ten-frames be used in the regular ten-frame food chamber or should they be spaced wider, using only eight or nine frames? —New York.

Answer: In some localities the half-depth supers may be large enough when used as food chambers, but in other localities it does not hold enough honey for safety during some seasons. Where there is a dependable fall honey flow, no doubt the half-depth super will be large enough. But in many localities the fall honey flow is not dependable every year and in such cases a full depth food chamber is better. Much depends also upon the character of the honey flow. In some localities it closes abruptly, leaving the brood chamber without much honey, while in other localities it tapers off toward the close, which causes the bees to store heavily in the brood chamber. In such cases the food chamber may not be needed. Most beekeepers are now using the full-depth hive bodies as food chambers, thus having all their combs the same size.

Origin of Brood Diseases

Question: An old bee-man here says that whenever we open hives at a time that would chill the brood, this results in foulbrood. Is he correct in this?—Florida.

Answer: No. Neither American foulbrood nor European foulbrood could possibly be caused by chilled brood. The cause of each of the brood diseases has been definitely established. American foulbrood is caused by a micro-organism known as **Bacillus larvae,** and European foulbrood is caused by another micro-organism known as **Bacillus pluton.** There can be no American foulbrood unless some of the organisms causing it are carried into the hive from a diseased colony. The same is true of European foulbrood. A simple experiment will show that chilled brood does not cause the brood diseases. By placing a comb of chilled brood in a healthy colony the bees will clean out the dead material and no harm done; but if a comb of American foulbrood is placed in the hive, the disease spreads until the colony is destroyed unless the beekeeper intervenes to save it.

The Hive Bomb is a Valuable Adjunct to the Smoker

F. B. WELLS, Allentown, Pa.

ABOUT THE most annoying thing that can happen in the bee yard is to have the smoker go out just when it is needed most. This is where the hive bomb saves the day for it allows the examination of a colony to continue uninterrupted. The back-lotter, and especially those back-lotters who do not use smoke to any great extent, will probably find that the hive bomb makes the use of a smoker completely unnecessary. It is good insurance in any case.

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Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 2.

Michigan's finest raspberry, basswood, clover comb honey, in 4 x 5 window cartoned sections. Extra Fancy, $8.00; Fancy, $7.00; No. 1, $6.00; No. 2, $5.00 case. E. Z. Quick Way B Farms, Boyne Falls, Mich.

TRY SMITH'S Fancy comb and extracted honey. Smith Apiaries, Clayville, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for all types extracted honey. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WRITE FOR Shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. A. I. Root Company of Syracuse, 1112-14 E. Erie Blvd., Syracuse, N. Y.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Company, Millersport, Ohio.

WANTED—Light amber-clover and fall-flowers honey. Cloverdale Honey Company, Fredonia, N. Y.

BEST CASH Deal for your honey (any grade) and beeswax. Alexander Company. 819 Reynolds Road, Toledo, Ohio.

BEESWAX WANTED — Highest prices paid in cash or trade for bee supplies. The A. I. Root Co., Medina, Ohio, Council Bluffs, Iowa, San Antonio, Texas.

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, Ohio.

WANTED—Honey in 60's. Send sample and price. Lloyd E. Allen, Tipton, Mich.

WANTED — Buckwheat and some light comb honey. Eastern Food Products, 115 Division Ave., Brooklyn, New York.

HONEY WANTED—Highest Cash Prices. All grades, advise quantity. Mail samples to: J. Grossman & Co., 12 Carlaw Ave., Toronto, Ontario, Canada.

WANTED, chunk comb and extracted honey. Mail samples and prices. Stoller Honey Farms, Latty, Ohio.

WANTED all grades of extracted, also 1500 cases or less of cut comb honey. Honeymoon Products Co., 39 E. Henry St., Box 85, River Rouge 18, Mich.

FOR SALE

WRITE FOR CATALOG — Quality Bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE — New heart cypress 10-frame bottom boards. K.D., 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. One nailed up sample postpaid, $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

COMB FOUNDATION PLANT OF THE EAST—that's WAX WORKERS, 1330 Slaterville Road, ITHACA, NEW YORK.

FOR SALE—8-frame Root equipment for 700-colony apiary. Write for details to E. H. Wadleigh, Monte Vista, Colo.

QUEENBEE PAINTING OUTFITS, $1.50 postpaid. Southwick Apiaries, Waban, Massachusetts.

FOR SALE—Complete equipment for 100 colonies. WARREN PARSONS, 926 Maple, EAST LANSING, MICH.

FOR SALE—150 gallon honey storage tank, $25.00; one vacuum honey bottler outfit with pump, $40.00. Pick up at my plant. R. L. Livermore, Belle Center, Ohio.

MY IMPROVED SUPER LIFTER and transport truck will take the "backbreak" out of beekeeping. Enables one man to do work ordinarily done by two. Write for new circular. Frode Kruse, Luck, Wisc.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

NORTHERN ITALIAN QUEENS — for production $1.00 each; 10 up, 90c. Shirl Baker, Rodney, Michigan.

THREE-BAND Italian Queens, 80c; 20 or more, 75c. Luther Pickett, Efland, N. C.

CAUCASIAN queens, balance season, 1 queen, $1.00; 25 or more 75 cents each. Lewis & Tillery Bee Co., Greenville, Ala.

GOLDEN ITALIAN bees and queens. Real yellow and very gentle. Select untested, 1 to 25, $1.00; 25 up, 90c each. Carolina Bee Farm, Graham, N. C.

THREE-BANDED Italian bees and queens. Extra good workers and very gentle. Dadant's Starline Hybrids and our regular Italians. Starlines, 1 to 25, $1.30; 25 to 100, $1.20; 100 up, $1.10; and for our regular Italians deduct 25c per queen. Alamance Bee Company, Graham. N. C.

CAUCASIANS, very hardy, gentle, long lived, good workers, personally raised, young laying queens, $1.00 each. Fred Brock, McDonald, Tenn.

BEES FOR SALE—the pick of 150 10 and eight frame hives; two-frame extractor, $25.00; good as new. On account of sickness will sell. Hartman's Glenwood Apiary, R.R. 4, Freeport, Ill.,

SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Iowa.

MISCELLANEOUS

WANTED—25 to 75 standard hives of bees. Priced right, inspected. R. K. Fox, Jr., Rt. 4, Chattanooga, Tenn.

WANTED—colonies in central or southern Florida. Box 955, Gleanings, Medina, Ohio.

ESTABLISHED BEE FARM. . . .4½ acres within 70 miles San Francisco, large modern home, and good-paying bee business offered by retiring owner at only $19,900! Excellent terms! Complete with 200 colonies bees, additional 150 hives, honey extractor, all equipment, Chevrolet truck, household furnishings! All honey sold through local retail outlets, fine income record, added income from pollinization sites, small orchard. Rustic 3-bedroom home, fully modern, fine 30x50 honey processing house, double garage. Quick possession to qualified buyer. $19,900 complete, only $4,000 down. Big FALL catalog. 17 states, sent free! UNITED FARM AGENCY, 681-GC Market St., San Francisco 5, Calif.

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Carloads and less than carloads. Mail sample and best prices in all grades.
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Oconomowoc, Wisconsin

NORTHERN QUEENS
Pure Leather Colored Acclimated Italian Stock
Untested, 1-24 ..... $1.00
24-up ..... .75
Select tested in large cages 2.00
Service and Satisfaction
BARGER APIARIES Carey, Ohio

ITALIAN
Package Bees and Queens
Jackson Apiaries
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J. E. WING & SONS
42 Years Continuous Service
Italian Package Bees and Queens
Our Specialty
Knights Landing, Calif.

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Bee Supplies
Jars and Queens
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Navasota, Texas

High Quality Italian Queens
75c each 10 or more 65c each
by airmail
CARLUS T. HARPER, New Brockton, Ala.

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Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
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Oconomowoc, Wisconsin

Quality Bred Italian Queens

September through October, $8.00 per dozen; November through March, $1.00 each, any number. The fall is the time to replace failing queens. All queens shipped by airmail.

Walter D. Leverette Apiaries
Fort Pierce, P. O. Box 364, Fla.

CAUCASIANS CARNIOLANS

Both are the gentlest of all races of bees. Hardy, prolific, rapid build-up best of workers. Gentleness saves time, patience, sweat, and work. Fall is a very good time to requeen for honey flow for winter stores.

PRICES:

Carniolans, each, airmail $1.20
Caucasians, each, airmail 1.00
Discount on quantity orders.

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QUEENS BY RETURN MAIL **65c**

2-lb. package with queen $2.75
3-lb. package with queen 3.50
Tested queens 1.00

BRIGHT 3-BANDED ITALIANS, guaranteed in every respect. Package bees F.O.B. express; if wanted shipped parcel post, add postage.
NORMAN BROS. APIARIES Ramer, Ala.

JOHN DAVIS QUEENS

We ship until November 1 and fall is the right time to requeen. Order now and be sure. $1.00 each, any number.

LITTLE'S APIARIES
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QUEENS $1.00
3-banded Italians

W. E. PLANT
Hattiesburg, Miss.

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Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P. India, or available through them. Subs. Rs9/ or 15 shillings or $2.25 yearly. Sample copy post free for Rs1/8/, or s2/6, or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

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BEE WORLD, the international journal of the Bee Research Association, published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $3.00 per annum. Apicultural Abstracts only $1.75 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane, ASHTEAD, Surrey, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription $1.00. Sample copy fifteen cents.

MOUNTAIN GRAY CAUCASIANS
Personally raised. Gentle, good workers; winter well. Queens $1.00 each.
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Our 1955 Catalog offers more than 70 label designs in a wide choice of color and style. Get your FREE label catalog from

THE A. I. ROOT CO.
Medina, Ohio

A TALK TO BEEKEEPERS

(Continued from page 554)

moving them back to the new desired location and, the other method, moving the bees a few feet each day until they were on the new location.

I told the beekeeper that I thought the bees could be moved that short distance late some evening after they were all in from the fields. There was a heavy honey flow on at the time.

The stipulation was that no empty hives or anything that looked like a hive be left on the old location, also that we would place some sticks and small branches of trees loosely over the entrances of the hives moved so that the bees, when they left the hives in the morning, would actually know they were on a new location and would re-orient themselves.

The hives were filled with honey and it required the help of two strong men to move them after all the bees were in from the fields.

I visited the apiary with some misgivings the following morning. Naturally, a few of the old bees had returned to the old location and were flying about but did not cause any disturbance. The following morning fewer bees returned and in a short time no bees were returning to the old location.

And so, it is possible to move bees a short distance, if no hives or anything that looks like a hive is left on the old location and if the hives after being moved have some objects such as sticks, weeds, or small branches of bushes or trees are placed loosely over the hive entrances, so that the bees when they leave the hives the following morning may actually realize that they are on a new location and will then become familiar with it.

IF ! ! ?

If you need better queens
If you want dependable service
If you want Island Hybrid Stock
If you want Regular Italians
If you want full Value for your investment

THEN — Order next from

Rossman Apiaries

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Prices	Regular	Island Hybrid
1-25	.85 each	$1.10 each
26 up ...	.75 each	1.00 each

"They Produce"

Howard Weaver's

PERSONALLY REARED

CAUCASIAN QUEENS

1 to 9 ..... $1.00
10 and up .. .90

Howard Weaver

Navasota, Texas

QUEENS "GULF BREEZE" ITALIANS
Do you want a good strain of bees for comb and chunk honey production as well as extracted crops? Then do like the champions do and use "GULF BREEZE" stock.
Prices: 1-24, 90c each 25-99, 80c each 100-up, 75c each
BESSONET BEE COMPANY Donaldsonville, La.

U. S. Savings Bonds come in all sizes . . . . .
and grow bigger every year.

REQUEEN NOW!

Time for this important operation is fast running out in some areas. Replacing old or otherwise inferior queens this fall may save many a colony from dying out this winter. And, furthermore, good young queens like ours will provide that quick and continuous build-up so essential for next year's honey crop.

Reg. U.S. Pat. Off.

Prices for remainder of season:

	"Magnolia State" Italians	"Dadant Starline" 4-way Hybrids
1-24	$1.10	$1.35
25-99	1.00	1.25
100-up	.90	1.15

Post-paid — Airmail where expedient — Clipped and Marked Free

JENSEN'S APIARIES MACON, MISS. U.S.A.

"The Business Quality Built"

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Italians Caucasians

No delay in filling orders.
Nice large queens each, ... 60c
Send us your order for 1 or 1000

MITCHELL'S APIARIES
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The Yankee Strain — $1.00 each
The Best Queens for Honey Production
22 Years of Breeding
The Stricker Apiaries
Annandale. N. J.

Get the best price for your honey. See Barnes before you sell. We obtain top market prices for our producer and pay cash at your door.

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Oakland, Nebraska

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Quality & Service
C. F. KOEHNEN & SONS
Glenn, California

TOO LATE TO CLASSIFY

HONEY WANTED—Our truck will pick up your honey and wax. Driver will pay you cash. Tideswell Supply Co., 2711 No. 63rd, Omaha, Nebraska.

WHITE CLOVER EXTRACTED in 60's per pound 15c. No. 1 to Fancy Comb $7.00 per case, Light Amber, $5.00. F. J. Smith, Castalia, Ohio, Route 1.

SALE PUBLIC AUCTION. 11:00 o'clock Sept. 22. 113 stands bees in lots of 10-25. Several hundred supers. Two four-frame extractors. 90 gallon tank. Honey pump. Cans. Nuke boxes. Other equipment. Junction State Rts. 127-117. Garrison Roebuck, Rockford, Ohio, R.R. 2.

FOR SALE—Your pick of 688 deep supers, 55c; 122 shallow supers, 35c; 25% discount for all; everything standard and 10-frame. Vernon Stevens, 278 East College Street, Oberlin, Ohio.

PURE COUNTRY SORGHUM, 18c lb., blended, 14c; pure white clover honey, 20c lb., all in new sixties. Lose Brothers, 206 E. Jefferson, Louisville, Ky.

FOR SALE. Ten colonies in good shape. Can provide disease free 1955 inspection certificate. Contact Mr. and Mrs. C. Wilczenski, 5359 East 124th and Granger, Garfield Heights 25, Ohio.

JUST NEWS

(Continued from page 565)

The meeting of the **Cortland County Beekeepers' Association** will be held at the bee-house of Mr. and Mrs. Fred Fairbanks on the Scott Road, Sept. 17th at 6:00 P.M.—Mrs. M. Hubbard.

"The Dancing Bees," a story of the life and senses of the honey bee, by the well-known scientist Karl von Frisch, contains an account on how the bees give each other information regarding sources of nectar by means of dances. The story may sound rather incredible. However, the author recounts his series of experiments leading up to his conclusions in such lucid fashion that the reader is not left in doubt. This 180-page book is written in language the average layman can understand. It sells for $4.00 and is published by Harcourt Brace and Company, 383 Madison Ave., New York 17, N. Y.

His Bees Were Hot.—John Silkwood of Decatur, Illinois, tried to harvest his honey crop and then discovered that beekeeping can be an expensive business. He placed his entire colony in his garage and lit a sulphur candle to drive the bees from the hive. As soon as the candle was lit the beekeeper left the garage and closed the door behind him. The candle burned, the beehive and the garage caught fire, and finally the house did too. Damage was estimated at $4,000.

BEEKEEPING IN MASSACHUSETTS

(Continued from page 529)

honeybee to reach the blossoms underneath. The increased yield is measured in hundreds of barrels per acre when rental bees are placed beside the bog.

Berkshire County is unique in our industry, because up in their picturesque hills the little blue flower of thyme grows wild and abundantly. It makes a very white wax and because of this, many beekeepers in this region strive to produce a top grade comb honey.

All in all, Massachusetts Bay Colony has much in its heritage to be proud of and its beekeepers are not the least on the list.

Italian Queens
EUGENE WALKER
Rt. 2, Box 892
Live Oak, California

Booking orders now. Over 30 years a shipper. Send for Free Circulars.
BLUE BONNET APIARIES
Weslaco, Texas

STARLINE HYBRID QUEENS—Ahead of anything we have tried in Hybrids. Send for descriptive results of 3 years test of Dadant Starline Hybrid Queens.

GARON'S OWN 3-BANDED ITALIAN STOCK improved through Know-How in selecting Breeding Queen Mothers for combinableness necessary for highest Honey Production.

DADANT'S STARLINE HYBRIDS
Reg. U.S. Pat. Off.

PRICES:	Italians	Starlines
1-24	$ .95	$1.30
25-99	.90	1.20
100-up	.85	1.10

Queens clipped and marked when desired, and Air Mailed at no extra cost.
GARON BEE COMPANY Donaldsonville, La.

DON'T FORGET US

..... When you need containers for your crop. Complete stocks of all sizes glass and tin.

..... When you have honey to sell. We have five large plants where we pack honey.

..... When you have beeswax to sell. Any of our six plants will buy it at highest prices.

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1880 E. Buchanan St., Phoenix, Arizona	P. O. Box 641, Idaho Falls, Idaho	15598 Road 29, Madera, California

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Your Choice of Two Outstanding Strains

DADANT'S Improved Starlines or
YORK'S Quality Bred Italians

Italians		Starlines	
1-24	$1.00	1-24	$1.30
25-99	.90	25-99	1.20
100-up	.80	100-up	1.10

Reg. U.S. Pat. Off.

The Preference of Leading Honey Producers

YORK BEE COMPANY **Jesup, Georgia**
(The Universal Apiaries)

It Pays
to
Advertise
in
GLEANINGS

BETTER BRED QUEENS
Three-Banded Italians

Insure your 1956 crop by requeening with our Better Bred Stock.

65c each, any quantity

CALVERT APIARIES Calvert, Ala.

QUEENS — ITALIANS — QUEENS
We offer you young laying queens, shipped prepaid Air Mail.
Clipped and painted on request.
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Tested Queens .....$1.50 each
QUALITY DOES NOT COST — IT PAYS
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WHY DO WE REQUEEN?

Because young queens make bigger colonies, get better honey crops, swarm less. No need to winter old queens when young queens cost so little. Our Italian queens are backed with our 100% satisfaction.

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Canada's
National Monthly Magazine
for Beekeepers

Canadian Bee Journal
Streetsville, Ontario, Canada

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QUEENS

ITALIANS **CAUCASIANS**

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They seem to be exceptionally good.
Why don't you try some?

PRICES:

Lots of 1 - 24	$ .75
25 - 99	.70
100-499	.65
Tested Queens, each	1.50

Queens Pospaid—Airmailed and/or Clipped—no extra cost

THE STOVER APIARIES **Mayhew, Miss.**

CAUCASIAN or ITALIAN Package Bees and Queens

Bees gentle to work with, less swarming, good producers, health certificate, and live arrival guaranteed are just a few things you get when your requirements are sent to me.

PRICES ARE:

Quantity		1-25	25-50	50-100
2-lb. pkg.	w/q	$3.00	$2.90	$2.85
3-lb. pkg.	w/q	3.90	3.80	3.75
4-lb. pkg.	w/q	4.85	4.75	4.65
5-lb. pkg.	w/q	5.80	5.70	5.50
Queens		1.00	.90	.80

FARRIS HOMAN
Shannon, Miss.

HOLLOPETER'S

Hardy, Hustling, Honey-gathering Italians. Reared on top of the Allegheny Mountains, and bred for hardiness, honey gathering qualities, with ease of handling.

Price of mated laying queens:

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10-24	.90 each
25-49	.80 each
50-100	.75 each

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The Only WEEKLY BEE Journal in the World

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Keep up to Date in Beekeeping by taking out a subscription now through our agents:

Gleanings in Bee Culture
Medina, Ohio

Answers to Picture Quiz, page 551

1. **Tom Shield.** General Manager of the Ontario Honey Producers' Co-op of Toronto, Canada. Here is the "top man" when it comes to honey marketing in Canada.
2. **Ralph L. Parker.** Chief Apiarist of Kansas and also the University beekeeping Specialist for that state. Author of Bulletin 357, "Bee Culture in Kansas".
3. **John E. Eckert.** Head of the Beekeeping staff at the University of California. Co-author of the book, "Queen Rearing", and author of many other bee publications.
4. **W. A. Stephen.** Extension Apiarist of North Carolina and Sec.-Treas. of the Southern States Beekeepers' Federation. Long famous for his research with honey and Nosema disease.

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Coming

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1-24 ..... 75c by prepaid air mail

25-up ..... 65c by prepaid air mail

THE WALTER T. KELLEY CO. Clarkson, Ky.

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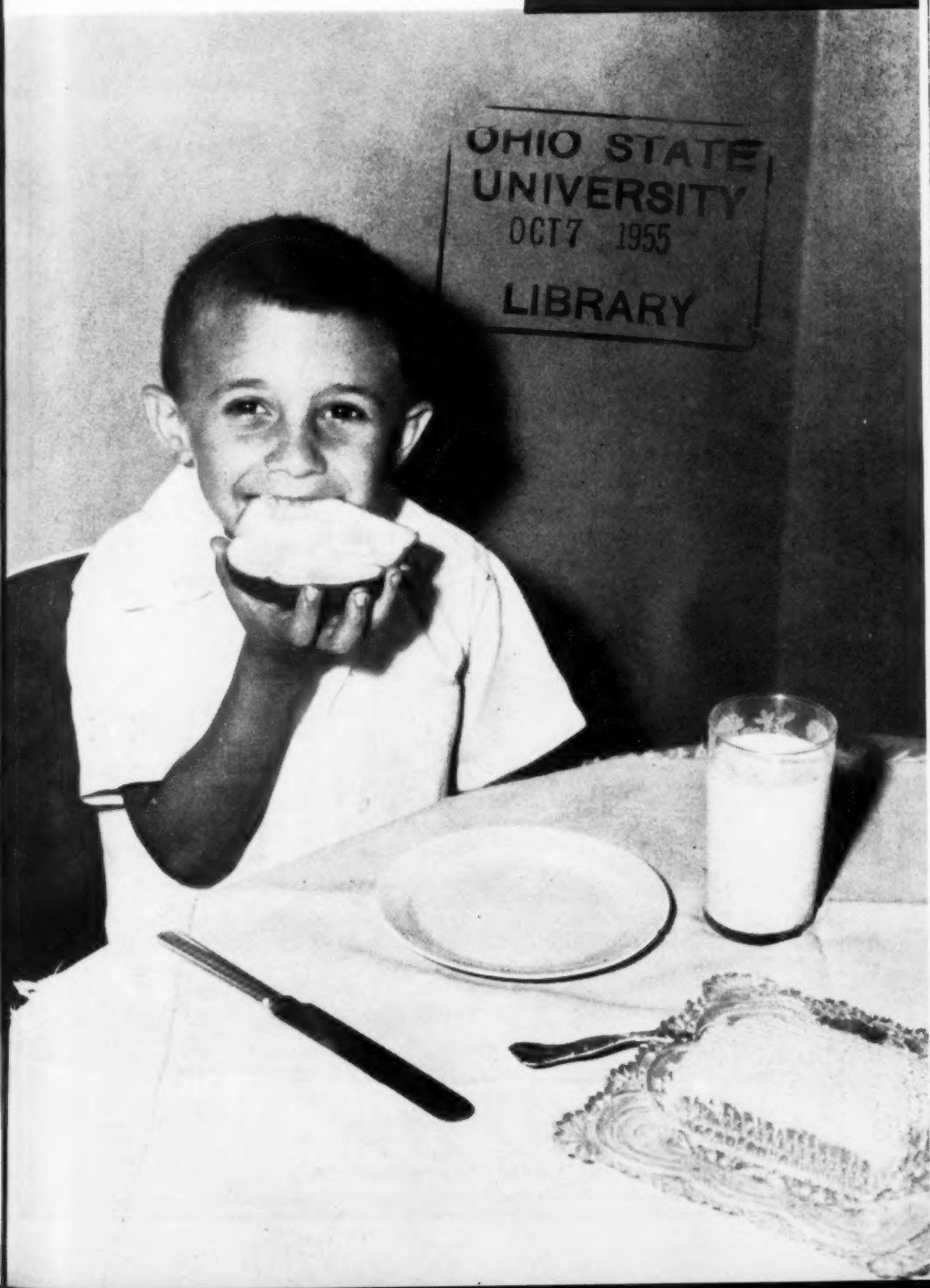
Gleanings in BEE CULTURE

October 1955



OHIO STATE UNIVERSITY
OCT 7 1955
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Hamilton, Illinois

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